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DREAMS AND PERSONALITY DYNAMICS

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MANFRED F. DEMARTINO

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DREAMS AND PERSONALITY DYNAMICS

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TO MY FORMER STUDENTS
AT SYRACUSE UNIVERSITY
AND
ALABAMA POLYTECHNIC INSTITUTE

PREFACE

The significance of dreams and their relationship to an understanding of human behavior was first brought to the attention of the scientific world by Sigmund Freud. In his monumental volume, *The Interpretation of Dreams,* which was published in 1900, Freud dramatically illustrated how dreams are capable of revealing the motivations underlying behavior. Freud believed that dreams represent the "royal road" to the unconscious. In 1931, in referring to *The Interpretation of Dreams* he stated, "It contains, even according to my present-day judgment, the most valuable of all the discoveries it has been my very good fortune to make."[1]

Since the publication of Freud's classic treatise on dreams a great many dream studies have been reported in the literature. (See Frost,[2] Frost,[3] Small,[4] Richards,[5] Woods,[6] Ramsey,[7] and Hall[8]). While it is true that formerly dream research had been accorded relatively little attention by "scientifically" minded psychologists and that many of the studies published were rather speculative, unsystematic, poorly controlled and nonstatistical in nature, this is no longer the case. Dr. Calvin S. Hall, who, undoubtedly is the foremost American psychologist in the field of dream research recently surveyed the literature and reported the following: "During the period covered by this survey (1946-1954), there have been approximately 200 publications dealing with dreams. Although many of these articles consist of the familiar case study approach to dream interpretation and minor theoretical papers, one can discern several important trends in the recent literature on dreams. Noteworthy among these developments is an increasing methodological sophistication with respect to such matters as the formulation of empirically testable propositions, attention to problems of sampling and reliability, the use of appropriate quantitative methods, and the necessity for control groups. Investigators are beginning to pay more attention to the psychological significance of the *manifest* content of dreams. . . The dream series method as a projective technique is a promising new development both for clinical assessment and for research. Anthropologists have begun to make more use of dreams in their cultural studies, and dreams are figuring more prominently in psychosomatic research. *Psychologists are coming to regard dream analysis as an exceedingly useful tool in personality research."*[9] (Italics mine.) In this connection it is also important to note that dream research has come to be accepted as a reputable topic for Master Theses and Doctoral Dissertations at a number of leading universities; e.g., Western Reserve University,[10] New York University,[11] University of Kentucky,[12] Duke University,[13] University of Chicago,[14] and Brandeis University.[15]

---

[1] Freud, S.: *The Interpretation of Dreams.* New York, Macmillan, 1933. New Edition Completely Revised (Foreword To The Third English Edition). By Permission of the publisher. [2] Frost, E. P.: Dreams. *Psychol. Bull., 12:*22-25, 1915. [3] Frost, E. P.: Dreams. *Psychol. Bull., 15:*12-15, 1918. [4] Small, M.: Dreams. *Psychol. Bull., 17:*346-349, 1920. [5] Richards, O. W.: The dream literature. *Psychol. Bull., 21:*338-346, 1924. [6] Woods, R. L.: (Ed.) *The World of Dreams: an anthology.* New York, Random House, 1947. [7] Ramsey, G. V.: Studies on dreaming. *Psychol. Bull., 50:*432-455, 1953. [8] Hall, C. S.: Current trends in research on dreams. In D. Brower and L. E. Abt (Eds.) *Progress in Clinical Psychology.* New York, Grune and Stratton, 1956, Ch. 16, Vol. II.

There seems to be little doubt but that the major resistance to dream research by behavioral scientists finally has been overcome and that in the future psychologists will devote increasingly more attention to dream analysis. For not only have the techniques and methodologies available for dream research improved greatly, but more important, psychologists and other social scientists are coming to realize that an understanding of dreams would be of immense value as an aid to understanding personality dynamics. Dr. Gardner Murphy has remarked, "But there is a *private* world, and within this a *private private* world, a world of dreams, in and for oneself. When it is discovered, when its richness, strength, and individuality are studied as objects of value for science and for art, there will be a psychology of personality more worthy of the name."[16]

---

[9] Hall, C. S.: Current trends in research on dreams. In D. Brower and L. E. Abt (Eds.) *Progress in Clinical Psychology*. New York, Grune & Stratton, 1956, Vol. II, p. 239. By permission of the author and publisher.

[10] Grotz, R. C.: A comparison of Thematic Apperception Test stories and manifest dream narratives. M.A. thesis, Western Reserve University, 1950. Lane, Ellen A.: The reliability of personality ratings based on dream series. M.S. thesis, Western Reserve University, 1951. Osterberg, Mary N.: A comparison of aggression in dreams and TAT stories. M.A. thesis, Western Reserve University, 1951. Polster, E.: An investigation of ego functioning in dreams. Ph.D. thesis, Western Reserve University, 1950. Pope, H. L.: Prohibitions, self-conceptions and dreams. Ph.D. thesis, Western Reserve University, 1952. Rabe, Claire F.: A study of sexual attitudes as revealed by symbols in dreams. M.A. thesis, Western Reserve University, 1949. [11] Redmount, R. S.: Dream analysis for the indication of differential diagnosis. Ph.D. thesis, New York University, 1949. [12] Griffith, R. M.: Typical dreams: a statistical study of personality correlates. Ph.D. thesis, University of Kentucky, 1950. [13] Gordon, H. L.: A comparative study of dream analysis and the Thematic Apperception Test as projective techniques. Ph.D. thesis, Duke University, 1952. [14] Spies, Kathryn E.: A comparison of dream and Rorschach content of psychotics and non-psychotics. M.A. thesis, University of Chicago, 1952. [15] Under the supervision of A. H. Maslow.

Moreover, depth-psychotherapists (psychologists) of various schools are beginning to appreciate the tremendous importance of dream analysis. It seems conceivable that the time may soon come, as in psychoanalysis, when dream analysis will be part and parcel of all *depth*-psychotherapeutic undertakings.

This anthology was organized with the aim of making it one which would be of interest and value not only to students, psychological clinicians and those who practice dream analysis, but also to academic psychologists. Consequently, as will be seen, the studies included in this volume are theoretical, clinical, empirical, experimental and statistical in nature. While there are several other studies which I should have liked to incorporate, because of space limitations this was not possible. Although the name of Freud is synonomous with dreams and his contributions still are considered by many to be the most important in the field of dream research, none of his papers is included in this anthology. The main reason for this is that his works are easily accessible and may be found in almost every library. It is hoped that this book will serve to enhance the understanding of dreams and personality as well as stimulate psychologists and other trained persons to engage in dream research so that before very long "there will be a psychology of personality more worthy of the name."[17]

---

[16] Murphy, G.: *Personality,* New York, Harper, 1947, p. 415. (See Paper No. 1). By permission of the publisher. [17] Ibid, p. 415

Almost all of the papers in this book in some way have been abridged. I would like to express my gratitude to the various authors and publishers for permitting me to reproduce them. In the footnote of each paper acknowledgement is given to the authors and publishers (except those authors whom I was unable to locate).

I would also like to express my appreciation and thanks to the Grants-in-Aid Committee of the Alabama Polytechnic Institute for their financial assistance in the preparation of this volume. It was while teaching at the Alabama Polytechnic Institute (1950-1952) that I first conceived of the idea for this book. To my former teacher and long time friend, Dr. A. H. Maslow, I would like to extend my sincerest thanks for his enduring encouragement and enthusiasm regarding this project. To Dr. Calvin S. Hall I would like to express my deepest gratitude for having given me so much of his time, many valuable suggestions in the organization of this anthology and for having permitted me to borrow his dream research library.

Finally, I would like to thank my wife Grace for her many hours of indispensable help in the compilation of the material for this book.

MANFRED F. DEMARTINO

Syracuse, New York

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DREAMS AND PERSONALITY DYNAMICS

Chapter I

INTRODUCTION

While a variety of expressive and coping components of behavior have been studied in an attempt to further our understanding of personality dynamics, thus far the attention devoted to dream analysis has been remarkedly deficient. This is very unfortunate because in many ways dreams, as a source of revealing inner personality dynamics, are unparallelled. For instance, as an individual and personal medium of expression the dream is unique. In this regard, Murphy has stated, "Probably no sphere of personality expression is richer with individuality than dreaming."[1] Moreover, in dreams, unlike many other forms of psychodiagnostic media, e.g., autobiographies, diaries, case histories, interviews, personality inventories and some projective devices, the element of repression plays a very subordinate role, thus permitting the organism much spontaneity in the expression of underlying (unconscious) needs, desires, hopes, fears, etc. In this connection, the following comment by Dr. Gordon Allport is especially noteworthy, "dream records constitute an entirely practicable form of the personal document, and probably one of the few avenues to the unconscious regions of personality . . ."[2] Furthermore, it should be noted that a dream is a form of expressive behavior. Similar to handwriting, gait, speech, and bodily gestures, dreams characterize one's life-style and hence reveal what an individual is really like, rather than what he would like others to believe he is. As Murphy has stated so skillfully, "The dream, being the least social, is in a sense the freest of expressive acts."[3]

---

[1] Murphy, G.: *Personality*. New York, Harper, 1947, p. 431.

[2] Allport, G. W.: *The use of personal documents in psychological science*. New York, Social Science Research Council, 1942, Bull. 49, p. 92.

[3] Murphy, G.: *Personality*. New York, Harper, 1947, p. 432.

In devising a projective technique it is a fundamental principle that the stimulus situation be constructed so as to allow the participant sufficient freedom to structure it in his own peculiar style, thus enabling him to reveal his self-concept, needs, fears, hopes and aspirations in all of their ramifications. In view of this, the dream most certainly can be regarded as a projective device. By its very nature the dream is perhaps more projective and more productive of spontaneous free association than any present-day clinically derived instrument. Besides allowing for an infinite variety of structure, the dream is limitless in its regard for reality, logic, creativeness and phantasy. No other existing diagnostic technique permits the participant's private world of meanings and feelings such freedom, vividness, or fullness of expression. In dreams friends may appear as enemies, men as women, paupers as kings, children speak with animals, and all sorts of experiences can occur which defy imagination. Hall has wisely commented that, "It [a dream] is a *personal document* and it is a *projection*. As a personal document it is more frank and intimate than a diary and as a projection it requires no ink-blots or pictures to bring it into existence. In our opinion the dream is more purely personal and more purely projected than any other material which the psychologist has available for the study of personality."[4]

One distinct advantage which dreams have over other forms of projective measures is the inability of the participant (dreamer) to create deliberately a distorted picture of his personality. Familiarity and sophistication with most projective devices, including the Rorschach and TAT may enable one to respond in such a fashion as to produce certain desired results. Since a dream is governed primarily by unconscious motivations, however, the dreamer can not voluntarily (consciously) guide his creations into desired channels.

In Chapter VI, it will be seen that while similar clinical content may often be found in the TAT protocols and manifest dream content of the same individual, many important differences also exist. A likely explanation appears to be that in some ways the dream is more revealing than the TAT. Dreams, for the reasons mentioned in the preceding paragraphs, contain information which the TAT is not capable of eliciting. This is not to imply, however, that the TAT is an inferior device. On the contrary, it is unquestionably of immense value. Nevertheless, it is felt that in the near future dreams are certain to be regarded by many social scientists as representing one of the major sources for studying personality dynamics.

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[4] Hall, C. S.: Diagnosing personality by the analysis of dreams, *J. abnorm. soc.* Psychol., 1947, 42, p. 68. (See Paper No. 17).

Before going on to describe briefly the papers which make up this volume, a few comments should be made regarding future dream research projects. In the writer's opinion the following avenues of approach would appear to be among the most fruitful: a) Use of the dream series method as described by Hall (see Paper No. 17), b) Use of Dement's techniques, i.e., rapid eye movements and EEG (see Papers No. 26, 27,28), c) Extensive and intensive statistical correlations of manifest dream data with the results derived from such devices as the Minnesota Multiphasic Test, Maslow Security-Insecurity Test, Maslow Test for Self-Esteem in Women, Rorschach, TAT, Sentence Completion Test, and other projective techniques, d) Use of psychologically healthy (self-actualizing) subjects as described by Maslow,[5] e) Extensive statistical studies both with children and the aged, f) Extensive use of hypnosis.[6]

The general outline of this anthology is as follows: Chapter I, which essentially is introductory in nature, consists of a very stimulating chapter (Paper No. 1) from Gardner Murphy's book on personality, and two papers (Weiss, McCurdy) which deal with the history of dream interpretation and dream theory. It is likely that the reader will find the paper by Weiss (No. 2) not only instructive but highly entertaining.

---

[5] Maslow, A. H.: *Motivation and Personality*. New York, Harper, 1954.

[6] In addition to the hypnotic studies found in this anthology see the following: Kanzer, M.: The metapsychology of the hypnotic dream. *Int. J. Psycho-Anal., 34:*228-231, 1953. Mazer, M.: An experimental study of the hypnotic dream. *Psychiatry, 14:*265-277, 1951. McCord, F.: Report of hypnotically induced dreams and conflicts. *J. Personal., 14:*268-280, 1946. Schneck, J. M.: Self-hypnotic dreams in hypnoanalysis. *J. Clin. Exp. Hypnosis, 1:*44-53, 1953. Schneck, J. M.: *Dreams in self-hypnosis. Psychoanal. Rev., 41:*1-8, 1954. Sweetland, A., and Quay, H.: An experimental investigation of the hypnotic dream. *J. abnorm. soc. Psychol., 47:* 678-682, 1952.

In Chapter II there is first presented a very interesting paper by Hall (No. 4) in which he discusses the findings derived from an analysis of a vast number of dreams reported by "essentially normal people." Following this there is presented a paper by Husband (No. 5) which deals with the prevalence of sex differences in dreams, an extremely important and informative chapter (Paper No. 6) from Kinsey's *et al.* book, *Sexual Behavior in the Human Female*, and a paper by DeMartino (No. 7) which is devoted to a review of the literature on children's dreams.

In Chapter III the attention of the reader is first directed to those dreams generally referred to as typical, namely of falling and being attacked; following which there is offered one of the most promising theories of dreams ever to be proposed by a psychologist (Paper No. 10). In the paper by Harris (No. 8) the hypothesis is put forth that, "The falling and attacked dreams may signify respectively fear over loss of love or support, and the fear of castration in its most general sense." Hall (Paper No. 9) however, after testing Harris' proposition concludes that "the dream of being attacked represents an expression of feminine attitudes of weakness, passivity, inferiority, and masochism as formulated by Freud. The dreamer does not fear castration, as suggested by Harris, since he already feels castrated. Instead, his fears are those of an impotent person who is unable to cope with internal and external threats of danger." In the theory of dreams propounded by Hall (Paper No. 10) the following points are basic: "1. Dreaming is a cognitive activity, and a dream is a pictorial representation of the dreamer's conceptions. 2. Dream interpretation consists of discovering the conceptions that lie behind the dream images. 3. Conceptions represented in dreams usually fall into one of the following classes: a) self-conceptions, b) conceptions of other people, c) conceptions of the world, d) conceptions of impulses, prohibitions, and penalties, and e) conceptions of conflicts. 4. Conceptions are organized into conceptual systems, and these systems are the antecedents of behavior. 5. Dreams provide excellent material for the analysis of conceptual systems since they portray unconscious and prototypic conceptions. 6. The theory . . . represents an extension of ego psychology to include dreaming as a function of the ego."

The relationships between dreams and personality characteristics are probably exemplified most vividly by the studies included in Chapter IV. The paper by Meer (No. 11) is based on a doctoral dissertation. In it he presents evidence which demonstrates that: a) Authoritarian subjects experience significantly more aggression with outgroup characters than with ingroup characters in their dreams. b) No significant difference exists in aggression between ingroup and outgroup characters in the dreams of nonauthoritarian subjects. c) In dreams authoritarian subjects have significantly more (.05 level) friendly acts with ingroup characters than with outgroup characters. d) No significant difference exists in friendliness with ingroup and outgroup characters in the dreams of nonauthoritarian subjects. Saul *et al.* (Paper No. 12) as a result of a pilot study[7] find that hostility is present in greater intensity in the dreams of hypertensives than in the dreams of normotensives. Lovett Doust (Paper No. 13) compares the dreams of a group of healthy subjects with those of psychiatric patients (Psychopathic personality, psychoneurosis, schizophrenia, depression, epilepsy and migraine). His results reveal the existence of a number of statistically significant differences between the groups; e.g., in regard to the incidence of nightmares and frightening dreams, recognition of color in dreams, hypnagogic sensations of depersonalization, etc. The very enlightening paper by Boss[8] (No. 14) which originally was published in German, deals primarily with the dreams of schizophrenics and organic psychotics. As will be seen there are certain fundamental differences between the dreams of these two clinical groups.

Chapter V, which is devoted to the vital problem of methods of dream analysis, is divided into two sections. The first section (A) consists of papers which discuss and illustrate various approaches to dream analysis. The second section (B) is comprised of studies involving the use of hypnosis as an aid to dream analysis. The paper by Gutheil (No. 15) illustrates W. Stekel's method of "active dream interpretation." Gutheil feels that this technique helps shorten the length of psychoanalytic treatment. Kant (Paper No. 16) unlike Gutheil, believes that "The dream should be *interpreted* as little as possible, it should be read." To accomplish this aim it is essential that the analyst be able to perceive a dream with "relaxed attention," have patience and be passive. In the excellent paper by Hall (No. 17) there is presented "1) a viewpoint regarding dreams as psychological data, 2) a theory of dreams, 3) a method for analyzing dreams, and 4) some evidence for the validity of dream analysis." Reis' paper (No. 18) is a condensation of a doctoral dissertation and is concerned with answering the question, "to what extent in qualitative and quantitative terms does the picture of a dreamer's personality, as derived from a series of dreams alone, agree with that derived from the same dreams if free associations to these dreams are also evaluated?" In the classical study by Farber and Fisher (No. 19) the following problems are investigated: 1. The capacity of normal individuals under hypnosis to understand dream language and the factors which might influence this understanding. 2. The production of experimental dreams under hypnosis. 3. The nature of the relationship between hypnotist and subject. Another frequently referred to study in which hypnosis is employed is that by Klein (Paper No. 20). A basic part of this investigation involves the subjecting of participants while in a state of hypnosis, to various stimuli and then having them report their dreams. Brenman (Paper No. 21) unlike most investigators questions whether the hypnotic dream is the same as the spontaneous night dream. She contends that "there is a wide range of response to the hypnotic suggestion to 'dream,' the average production having a structure which seems intermediate between the daydream and the spontaneous night dream, in that primary processes are used more than is common in waking thought, but less than in the typical night dream."

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[7] For a more detailed description of this study see: Saul, L. and Sheppard, E.: An attempt to quantify emotional forces using manifest dreams; a preliminary study, *J. Amer. Psychoanal. Ass'n., 4:*486-502, 1956.

[8] Medard Boss is a Professor of Psychotherapy at the Univ. of Zurich, Switzerland. Among his publications is the following: *The Analysis of Dreams,* (Translated by A. J. Pomerans). New York, Philosophical Library, 1958.

The papers in Chapter VI are concerned principally with investigating the projective qualities of dreams. From Day's study

(Paper No. 22) we learn that, "1 . . . dreams can serve as stimuli for projective interpretations. 2. When an interpretation of a dream is made [by a layman] without reference to the person having had the dream, the interpreter is projecting his own emotions, attitudes, and experiences into the dream material. 3. The pattern of emotional responses and attitudes which may be used in analyzing personality structure, is more reliable than the specific references to person or situations found in the dream interpretations." Gordon's paper (No. 23) is based on a section of his doctoral dissertation undertaken at Duke University. After systematically and statistically comparing the dreams of 29 adult, nonpsychotic psychiatric subjects with their TAT stories Gordon makes a number of very interesting discoveries. For example, he finds that dreams express more socially unacceptable material, more aggression, tension and fear, less depression and self-blame, and a greater desire for close companionship. Dreams also tend to portray the central character as being more passive and inadequate. The following comments by Gordon are especially significant, "It appears that in his TAT stories the subject attempts, consciously or unconsciously, to keep the central character of his projections from expressing any material that is clearly inconsistent with his concept of self, or that violates cultural sanctions. In the dream, where there is presumably less concern with defending this idealized role and less intellectual control, freer expression is given to the customarily suppressed material." In paper No. 24 Sarason compares the TAT stories obtained from 25 institutionalized mentally retarded females with the dreams reported by the same subjects. He concludes that, "Not in every case were all the major themas in the thematic found in the dreams, but in no case were data from any one subject at complete variance." Bolgar (Paper No. 25), as a result of a systematic scoring of Rorschach protocols and dreams for affective content, confirms her assumption that "there is demonstrable consistency both in the intraindividual distribution of affect and in the symbolic expression of the affect, and that the consistency of symbolic expression increases with the emotional illness and decreases with emotional health."

The final chapter (VII) in this anthology is both highly unique and of the utmost importance. For the painstaking experimental studies by Dement[9] and his associates (Kleitman, and Wolpert) which make up this chapter, demonstrate unequivocally that it is now possible to determine objectively: when dreams are being experienced, the duration of such dreams, the relation of body movements and specific eye movements to dreaming, and the effect of external stimuli on the content of dreams. The study described in Paper No. 26 conclusively establishes the fact that rapid eye movements (during a state of sleep) can be relied on as an objective indication of dream activity. Paper No. 27 along with a number of other interesting findings, reveals that the EEG is actually a better criterion of the presence of dreaming than rapid eye movements. From the study reported in Paper No. 28 we learn that, "eye-movement periods with minimal ocular activity are associated with passive dreams, while frequent and large eye movements are associated with active dreams. . . . eye movements seen in sleep are those that the sleeper executes in the dream. . . . Gross body movements appear to be associated mainly with the termination of a dream period and with the end of dream sequences within the period. . . . external stimuli are not markedly effective in modifying the dream content but some (cold water) are more effective than others (pure tone). . . . dream events and real events proceed at about the same rate."

No. 1

THE DREAMER*

Gardner Murphy

Just as reverie can portray both the content and the style of individual autism, so the full-fledged dream can speak volumes about the present meaning of one's past, the future meaning of one's present, the structure and feeling of one's wants.

The dream, however, has more to say than this. Just as the artist creates because he wants to create, and not merely because the canvas can perhaps be sold, the dreamer dreams not only because he can in this way put some of tomorrow's goods on to the dream stage for present contemplation, but because the dream process is itself a good, a value, a thing worth while. Many wishes may struggle with one another, some relating to the future, others remorsefully to the past, others—as Holt has so well shown—being simply modes of escape from predicaments. But all these scattered wishes are ordered, given a unified dramatic vitality, because there is a need for it. If it is true that wishes are clues to the appearance of the dream fragments, they are also clues to the dramatic wholes. Many a commonplace person finds some degree of fulfillment in dreams with melodramatic, lyric, or epic splendor of a sort which he could never for the life of him compose in the full light of his "senses." There is a need at work, and a full-fledged activity which has an organic meaning; there is a kind of creativeness which is indulged for its own sweet sake.

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[9] Dement, who has an M.D. as well as a Ph.D. degree is presently in the Dept. of Psychiatry at the Mount Sinai Hospital in New York City.

*Abridged from G. Murphy: *Personality*, 1947, Chapter 17. Reprinted by permission of the author and Harper & Brothers, New York.

Perhaps the fact that it is a thing one resorts to when he is not under any immediate stimulus compulsion from outside is evidence that dreaming is a thing he very deeply wants to do. Perhaps this epic or architectural building activity is something resident in human tissues and very imperfectly expressed in a practical civilization. General testimony indicates that imagery is usually richer, affect stronger, dramatic plot more complex in dreaming than in waking reveries. And if, as appears to be the case, one can in a private world create according to his heart's desire, in his own idiom, and for his own delectation, with no need to play to the grandstand, to please the boss, Mrs. Grundy, or the American Legion, or even the sound sense and good judgments of the "best people," there ought to be in the dream process a revelation of individuality that is not to be had anywhere else. The best we have been able to do up to the present is to half-persuade the person to be his private self; this is the value of the projective methods, the Rorschach test, the analysts' free associations. But half way is not enough; perhaps the dream can go further. It must be caught, cultivated, tissue-cultured, or, best of all, placed—while in full vitality—in a vivarium where its macroscopic and microscopic tissue changes can be studied.

This is not to say that the private world is the "best" world. . . . most of the books on personality by psychologists are so top-heavy with sociality that the little self is timidly hidden under the mass. But there is a *private* world, and within this a *private private* world, a world of dreams, in and for oneself. When it is discovered, when its richness, strength, and individuality are studied as objects of value for science and for art, there will be a psychology of personality more worthy of the name.

Almost everything in our culture has been given an "economic" interpretation; everything we do, say, or feel is traced to our mode of production and distribution. One portion of our humanity, however, has like Pandora's little "hope" been left in the box, so unimportant, so unworthy that it was not even thought fit to be shaken down into its economic role; the economics-minded have perhaps been so sure of their economics that anything so clearly without value as a dream could be ignored.

Pandora confronts the world of the sleeping person. Everyone knows that sleep is physically necessary; we wail at the wasted time but we perfect our mattresses. Dreamless sleep is "better for" us; the "real" things of the waking world can be done better if we consecrate the resting hours to a new attack upon them. Most of what we dream is forgotten in the first few minutes; only if it makes good conversation or "bears upon" the day's tasks is it worth a thought. Psychoanalysts say that dreams "mean" all sorts of things, i.e., in terms of waking; the individual fears to tell his dreams for fear of waking reproval. The psychoanalysts are, however, completely harmless, for they, too, are awake. They agree that sleep is nothing but escape, and that dreams are guardians of the escape process, letting us dwell in disguised fashion upon the possibilities in the waking world, so that by make-believe that is not too realistic we may be strong enough in the morning to go on with our usual self-deceptions, and when necessary walk through the shams of life with a finger on Ariadne's "reality principle."

A third of life for us all, then, is a sad psychological waste that has no economic value except as a hostage to tomorrow's toil; its psychological product is industrial waste, occasionally salvaged by the psychoanalytical chemist, but for most people most of the time so gross that it is not commercially worth the cost of reclaiming it. This, I think, is the honest attitude of our practical society toward the world of sleeping and dreaming. It is the attitude of the business man who gets things done, and of the worker who gets the things done for him. Nobody wants a "dreamer." Let's stick to business.

This attitude has resulted, I believe, in one of the greatest instances of myopia to be found in contemporary psychology. Indeed, from a respectable psychological point of view, the waking events to which we have been attending . . . are ordered with reference to the struggle to exist or to maintain a standard of satisfaction in existence. Psychological events, in other words, occur for the sake of something to be achieved thereby. The means-end relationships color everything; when once the author has given you his pet theory of drives, the remainder of the book consists in seeing how the drives are satisfied. The Ways and Means Committee as always, is the center of the structure. The one psychological world at the center of which each individual, spider-like, watches for prey is a world in which psyche waits upon soma, ministering to its every need.

. . . Kittens will play, boys will be boys, men will go fishing, women will talk over the back fence, and all of us will dream and dream. Dreaming, in other words, is the realization of a biological function for which there is a need; it occurs because universal and important activities are expressed in and through it. Although it may be in part preparatory to waking tasks, this helps but little in defining its *modus operandi.* We smilingly approve of Junior's playing football, for it will make a man of him; but he does not play because it will make a man of him, but because it is fun. The rules by which he plays are determined not by the kind of man he is going to be, but by the inner necessity of the activity. Books about football are not tracts on the business world for which football prepares. Yet dreaming—exquisite, rich, beautiful, terrible, insane, furious, trivial, ineffable, silly, ravishing world that it is—is treated by psychologists, psychoanalysts, fortunetellers alike as a "nothing but" world; it is "nothing but" a repetition of or preparation for waking experience, nothing but an odd befuddled form of imagination.

Sometimes one wonders whether the practical psychologist has ever allowed himself, on waking, to try to reconstruct an entire active dream in all its fullness, or set himself, as he retired, to the task of dreaming a particular kind of dream; whether he would ever dare come near enough to a whole dream to get the feel of it: or whether the psychoanalyst has ever allowed himself to see anything in the dream except the symbolic play with the phases of the waking world of which his patient is wishfully afraid.

For the dream may not only run parallel to but bring to its finest fruition that which is outstandingly original or beautiful in the waking state. As DeQuincey, most magnificent of dreamers, describes it:

> When I lay awake in bed, vast processions moved along continually in mournful pomp; friezes of never-ending stories, that to my feelings were as sad and solemn as stories drawn from times before Oedipus or Priam, before Tyre, before Memphis. And, concurrently with this, a corresponding change took place in my dreams; a theatre seemed suddenly opened and lighted up within my brain, which presented nightly spectacles of more than earthly splendour . . . as the creative state of the eye increased, a sympathy seemed to arise between the waking and the dreaming states of the brain in one point—that whatsoever I happened to call up and to trace by a voluntary act upon the darkness was very apt to transfer itself to my dreams; and at length I feared to exercise this faculty; for, as Midas turned all things to gold that yet baffled his hopes and defrauded his human desires, so whatsoever things capable of being visually represented I did but think of in the darkness, immediately shaped themselves into phantoms for the eye; and, by a process apparently no less inevitable, when thus once traced in faint and visionary colours, like writings in sympathetic ink, they were drawn out, by the fierce chemistry of my dreams, into insufferable splendour that fretted my heart.

This kind of full-bodied reality offers the starting point. Analysis is excellent if it does not forget what is to be analyzed, or insist that the many fragments discovered are all that there is in the organic totality. Let us try, then, the method of dissection, then return to the problem of dream structure. Dreams are a form of association . . . and are related to the days which have gone before; and they are a form of wishing and they relate to the days ahead. The interconnectedness of life processes requires that. So—and also because dreams have been collected and published with these simple principles in mind—the analysis of dreams as personality indicators will have to begin with studies of the association and wish-revealing properties of dreaming, for each dream shows personal idiosyncrasies, motivation, and structural properties. Abundant records of children's dreams, as in Piaget's and Kimmins' work, make very clear that both the content and the form of the dream reflect the mental level of the dreamer, complexity coming with complexity of mind; Sarason's comparisons of the dreams and waking fantasies of subnormal girls bring out very striking parallels of the same sort. Since the dream is a turned-in or introverted process and hence suffers from the general disvaluation to which all introverted activities in our society are subject, we should expect to find a greater richness in dreaming on the part of those who, for whatever reason, have learned to find their deepest satisfactions in the inner world. In a similar vein, we should expect to find that those whose autisms can give rise to plastic and productive fantasy while awake will, other things being equal, dream most magnificently. We should expect to find individual differences in the sheer skill or artistry of individual dreaming to which the great dreams of DeQuincey and Coleridge bear witness.

One of the most skillful realizations of dream autism is the process by which little is made to stand for much. The dream is a condensed or truncated picture; it must say much in few images. In response to an outer stimulus it may fabricate by a method of successive high spots what would in waking life take months or hours to produce. Thus in Welch's study of the time relations of hypnotic dreams, an event which would take about seven minutes (walking to Mill Lane) is run through with reasonable clarity and convincingness in a half minute, or in two minutes at most. Naturally we raise the question whence this convincingness comes; and if we look closely, we find a "dream pantomime," or make-believe, by which the truncated performance is taken as if it were the whole. Few dreams, except the rather rare, starkly realistic dreams and nightmares, have the full *structure* of waking fantasy. One of the things which makes the dream less realistic, one of the devices by which a person knows when awake that he is not dreaming, is the fact that the dreamer keeps at arm's length the disturbing details which would interrupt the symphony of his autisms; he is vaguely aware that he is *schematizing* rather than photographically recording. There are thus all degrees of self-deception, all degrees of effectiveness in parrying life's threats, in keeping just out of sight those attributes of the dream which would defeat the essentially autistic character of the process.

The heart of the normal dream is apparently the physiological excitation of tensions, in other words, unsatisfied needs, . . . Various nineteenth-century experimenters induced dreams by placing the limbs of the sleeper in such positions as to cause discomfort, so that dreams of activity ensued, or by producing tactual discomfort leading to dreams of escape. Klein's subjects dreamed of falling head first or feet first, as the experimenter pressed down the head or foot of the cot. So, also, the studies of Watt and Horton have shown the simplicity of the connection between physical stimulation and dream elaboration, inducing dreams of flying or of being scantily clad by manipulation of the dreamer's environment.

The dreams of children, as both Freud and Kimmins have shown, are often centered in the wishful continuation of daytime activities. The drive, . . . is associated with the features of the environment which tend to satisfy it. A child, skating to his heart's content, is called in to supper; in that night's dreams he goes on skating. Surface needs are also frequently evident in adult dreams. A man hearing the alarm clock ring at 8:00, and having a distant appointment which he must keep at 9:00, falls asleep again and dreams that he keeps the appointment, thus satisfying the sleep need and at the same time autistically satisfying the social-respectability need; he sees himself as an appointment keeper. Clearly a "comfort dream" of this sort is a purposive dream. However much we may be impressed by the "association by similarity" which occurs in dreams, by their symbolic portraiture, their capacity to mirror or to distort waking reality, they clearly have the additional quality of aiming at something, of achieving a purpose.

FREUD'S DREAM INTERPRETATION

In terms of the whole conception of motivation developed here, *every* motive, every tension, is likely to influence dreams, and every tension which reaches a high pitch is likely to be *central* in dream determination. On this basis, for example, sex dreams should be common in adolescence and early maturity, rarer in childhood and old age; and this is evidently true. On what grounds we should assume that dreams not directly suggesting sexuality must derive from the sexual is unclear; but there is clear reason for such interpretations if we look at the historical conditions under which this approach was developed. In recounting his early days, Freud tells how, on discovering the regularity of overt or covert sexual aberrations in the lives of neurotics, he undertook to give a systematic report to the Viennese Neurological Society. The audience froze him out; they did not want to learn from him; he was a moral leper in their eyes. The result, as he makes clear in no uncertain terms, was to make him determine from that time forth unswervingly to seek from every patient the sexual origin of his neurosis. He determined to find sexuality. This is a clear and honest statement of autistic perception, and the dream was a major datum to be perceived in this way.

In his masterful *Interpretation of Dreams,* the result of this quest, Freud contrasts *manifest dreams,* as recalled by the patient when awake, with *latent* dreams, made up largely of sexual wishes, which, owing to a process of censorship, must be disguised in order to allow the sleeper to escape the anxiety which would be aroused were he to confront them directly. The disguise is effective through symbolism (a dream of water refers to birth, etc.), condensation, transposition, and other forms of elaboration of the events portrayed in the original (unconscious) wish. The free associations given by the patient after recounting the dream help the analyst to find the "sexual origin of the neurosis." But when he finds it, he does not go on to find other cognate or even more important tension systems that may be at work in dream etiology. A mountain-climbing dream is held to be *interpreted* when mountains are seen as breasts, etc.; there is no interest in the empirical possibility that mountain-climbing as a canalized activity drive is fun per se.

This point of view was conveyed to the pupils who thronged to learn the new approach. In his history of the psychoanalytic movement, Freud wistfully refers to the years just before the close of the nineteenth century when he worked in isolation and was thus free to follow his own ideas. The publication of the *Interpretation of Dreams* in 1900 altered the scene. He was now a celebrity, a teacher at whose feet young physicians sat for guidance in the new method. They soon overflowed his office. Over their coffee they learned to seek out the clues to hidden motivation and censorship, the subtleties of transference and the skills available to the analyst. This way of looking at dreams came into medical and then general folklore, and is as hard to view objectively as is most folklore, especially since Freud's point of view is in many fundamentals corroborated by clinical evidence. The task of disentangling fact from fiction is difficult indeed.

Among all the flashes of genius in Freud's work, none is more compelling than the distinction between the latent and the manifest dream, for this provides the one necessary clue to the relation between the physiological world and the psychical world. The latent dream is the tension system. There is no one way in which the tension system must be discharged; on the contrary, there are many alternatives and many possible combinations. The *dream work* is the process by which the tensions, in their facilitation and conflict, actualize, through the familiar autistic mechanisms and figure-ground relationships, a perceptual whole. The result usually takes a three-dimensional form, conveying reality to the dreamer, but it is fluid with respect to time. Hence, as we have seen, events are transposed or condensed. The architectural quality of thinking also appears here, with genuine higher units and a definite dramatic plot. The dream as we experience it, and especially as we remember it, is therefore much more than a clue to the needs that dominate at the time; it is a clue to the architecture of our minds as well.

Freud realized early that the events of the day preceding the dream are of some secondary importance, in that they provide some of the raw materials for the manifest dream; at the same time he inferred that materials registering on the periphery of consciousness will be more likely to be used in this fashion than materials accepted by the ego and woven into the ego system of waking life. Both interpretations were strikingly confirmed by experiments indicating that of the material exposed to experimental subjects that which was never noted was in reality used more frequently in the dream than that which was noted and commented upon.

The presumed relation between latent and manifest dreams necessarily involves the use of substitute responses of the sort noted below in studies of displacement as well as those appearing in transferred conditioned responses. Such substitutes are called "symbols;" the manifest dream is a texture of symbolic material. The man who wrote about Joseph's interpretation of Pharaoh's dreams fully understood the mechanism, and Aristotle gave it a trenchant description; but it remained for Freud to show the inevitable and universal role of these symbols if the physiological world is to enter meaningfully into the shadowland of imaginary portrayal. We should expect to find the summation or integration of the physiological impulses resulting in the utilization of symbols that kill two or more birds with one stone, or, to put it the other way around, symbols arising because multiple factors lead toward them. This mechanism Freud calls *overdetermination*. Although it is omnipresent, it is particularly forceful in making clear that experimental analysis is the only device by which the different determining components and their varying contributions can be ascertained.

If it is true, as we have argued, that all motives interpenetrate and that all motivation is complex, it follows that there is a sexual phase in most activity patterns, just as there is an esthetic and an activity phase. To anchor one's view of the dream in terms of any one motivation is perfectly sound if thereby he means temporarily to limit the field of observation, as in a microscope. But if he forgets that he has done this, the result can in time damage his whole picture of the dream. There is, indeed, high probability that direct or indirect sex impulsions appear in a great variety of normal human relationships as plainly in waking as in sleeping life, as poets and novelists and kind hostesses and the gentry of the courts have always known. We can therefore offer no objection to the complex arguments which the Freudian dream interpreters use to discover indirect sexual references in most dream material. But the fact of such indirections must logically be considered in relation to all the other motives as well. Freud could have used the occasion to show that sensory and activity drives, and particularly ego satisfactions, may frequently be indirectly satisfied through direct sexual expression, so that the argument cuts two ways. Just as sexuality may be hidden beneath a purported esthetic impulse, so an esthetic need may be masked by the crudely elaborated symbols of sexuality.

From this it follows that there is no final interpretation for any dream. Almost as soon as the cigars and coffee had been handed around, the neophytes who had learned how to interpret dreams began to quarrel with the master and with one another, asserting not only that they had found better interpretations but that they had found better *ways* of proceeding. Many of the splinter movements which from time to time have drawn off numerous members of the group have been activated by such quarrels about the interpretation of dreams. Just as Stekel discovered the true meaning of dreams in 1911, so Horney has recently found better methods for getting at what the dreamer is really up to.

These differing approaches to the dream depend partly upon our conception of the task of interpretation. If the analyst wishes to *reduce* the dream to its sensory and physiological basis, the experimental method is the only safe one, as Klein's work has made clear. If, however, he wishes to determine the full *significance* of the dream, to read between the lines, to immerse himself in a world between earth and heaven in which everything tentative is real and impossibilities become possible, it may be better for him (at least for the time being) to dream along with his subject, to allow a certain tentativeness to lead him slowly into a semi-mystical world in which anything that appears to be a hypothetical possibility becomes for the moment an immediate reality. Exactly this path was trodden by Jung in his amazing *Psychology of the Unconscious;* its method—it is no more than a friendly exaggeration to say this—is to argue that because *A* is somewhat like *B*, and *B* can, under certain circumstances, share something with *C*, and *C* has been known on occasion to have been suspected of being related to *D*, the conclusion in full-fledged logical form is that $A = D$.

As the language of *science*, this is meaningless; but as the language of the dream, which for the time being the analyst shares sympathetically it is as eloquent as any poetry. "Dream interpretation" need not involve a catalogue of the source materials of dreams; it may mean the process by which the student, himself wide awake, can recapture the essence of the dream's intent. One cannot live in this egocentric, non-logical world of the dream unless he has taken a round-trip ticket to a place far from the demands of waking existence, knowing full well that he is going away and will return later. To do this requires an active putting aside of the waking point of view. . . . This process of dividing ourselves between two worlds of activity may be achieved by dissociation, the functional splitting of personality. The dream is an especially clear-cut example of such splitting.

The splitting may go far, as when one part attacks or makes fun of the other. Humor and terror dreams in particular have attracted the attention of those who have suspected not only that there is dissociation but that one compartment of the personality is taking the other part for a ride. The humor of the dream is often a take-off upon oneself. As the solemn man dresses himself up in Puritan or even Messianic costume, the feeling tone is of that confused *ambivalent* type which we have when we feel *impelled* to read in the newspaper (and enjoy reading) something that we verbally insist is *repugnant*. So the Puritan and the Messiah are looked upon by the dreamer as his good old self, somewhat glorified, and yet not quite as glorified as he expected. As he wakes, he breaks into a laugh when he realizes how perfectly his own pretensions have been portrayed, yet with such restraint that the Puritan or Messiah in the dream did not give up the whole show as a bad job. In the same way, as the nightmare descends, the dreamer succumbs properly to the intended terror but is seldom as completely terrified as he "ought to be." His feet may drag heavily as he tries to escape the bear, but the bear's claws do not actually take hold. Often, indeed, the "stage manager" who is directing the show works up the terror step by step, as if he were applying thumbscrews until just enough fear was produced to wake the dreamer. There is a certain quality here as if he said, "This fellow is stifled by too many bedclothes over his face. Let's see how much scaring he needs to wake up."

Before we embark on any theory as to the nature of the dissociation or the selfhood shown in such performances, we should realize that it is a primary task of the dream to *deceive* the dreamer. And though deception is usually a clumsy process, it seems somewhat smoother, it is less frequently "seen through" than is the case in waking life. Everything is *as if* there were not merely physiological impulsion but definite design. The design is evident only in waking retrospection, because the consciousness of the dream state is the unitary, self-deceived consciousness of participation in a make-believe world.

It might well be argued in connection with this view of dissociation that the physiological dissociation of sleep merely renders part of the personality inactive, so that there is, as it were, a reduction—a sub-amputation rather than a splitting. But though the dissociative effects of sleep need not be denied, there is much to indicate that as one runs away from the waking world, he actively pushes away many of its attitudes. It is largely because he does so that he can give himself a clean canvas for dream creations.

DREAM CREATIVENESS

Partly because the outer world is not there to say no, partly because the senses can contribute only few and feeble interferences, partly because one has at his disposal the entire material of his life, and partly because no critical standards, no acid test can be invoked, the dream typically reaches heights and spreads out over areas which the disciplined mind of the civilized adult would not dare to scan. If for no other reason than the richness of the available materials, the degree of creativeness achieved may altogether transcend even the wild fancies of the fanatic, the intoxicated, or the delirious.

Such creativeness, however, is in no sense purely a matter of being as different as one can from what he is in his waking life; it may be creativeness in the sense of making the most orderly and intelligible pattern out of existing materials. In other words, it may, according to the standards of waking life, outdo the dreamer's best intellectual standards when awake. Few have a better right to appraise this than Stevenson, who marketed his dreams on a large scale. In his judgment, "The Brownies" who created his dreams were often far ahead of "his own" achievements. He tells how his dreams came to produce stories for him much more rapidly and effectively than he himself could; "the Brownies," the "little people," not only could create a good plot in a few moments but could hide the solution from the dreamer, so that not until the final moment of the story could he catch the purport of the whole; then he would be startled by the simplicity of the solution. The Brownies gave no unnecessary hints. "I will go bail for the dreamer (having excellent grounds for valuing his candour) that he had no guess whatever at the motive of the woman—the hinge of the whole well-invented plot—until the instant of that highly dramatic declaration. It was not his tale; it was the little people's! And observe: not only was the secret kept, the story was told with really guileful craftsmanship. The conduct of both actors is (in the cant phrase) psychologically correct, and the emotion aptly graduated up to the surprising climax. . ."

What is the *dynamic,* the *process* of dream integration?

Several steps are required in answering this question. In Stevenson's words, "Who are the Little People? They are near connections of the dreamer's, beyond doubt; they share in his financial worries and have an eye to the bankbook; they share plainly in his training; they have plainly learned like him to build the scheme of a considerate story and to arrange emotion in progressive order; only I think they have more talent. . . . Who are they, then? and who is the dreamer?" For one thing, he believes, they are wiser than "the dreamer." "I cannot but suppose my Brownies have been aping Bunyan, and yet in no case with what would possibly be called a moral in a tract; never with the ethical narrowness; conveying hints instead of life's larger limitations and that sort of sense which we seem to perceive in the arabesque of time and space." They seem, then, to be the artist freed of many of his temporal, local, and cultural constraints. Their imagination is the artist's normal imaginative processes broadened, enriched, and deepened.

Occasionally we are fortunate enough to have a closer view of the thaumaturgy of dream creation in the form of a detailed autobiographical record of the process by which a dream solution of a problem oversteps the achievement of the waking mind. A classical instance of this type was offered by H. V. Hilprecht of the University of Pennsylvania, who had ineffectually struggled to decipher a cuneiform inscription upon a broken clay cylinder:

> The whole problem passed yet again through my mind that March evening before I placed my mark of approval under the last correction in the book. Even then I had come to no conclusion. About midnight, weary and exhausted, I went to bed and was soon in deep sleep. Then I dreamed the following remarkable dream. A tall thin priest of the old pre-Christian Nippur, about forty years of age and clad in a simple abba, led me to the treasure-chamber of the temple, on its south-east side. He went with me into a small, low-ceiled room, without windows, in which there was a large wooden chest, while scraps of agate and lapis-lazuli lay scattered on the floor. Here he addressed me as follows: "The two fragments which you have published separately upon pages 22 and 26, belong together, are not finger-rings, and their history is as follows. King Kurigalzu (*circa* 1300 B.C.) once sent to the temple of Bel, among other articles of agate and lapis-lazuli, an inscribed votive cylinder of agate. Then we priests suddenly received the command to make for the statue of the god Ninib a pair of earrings of agate. We were in great dismay, since there was no agate as raw material at hand. In order to execute the command there was nothing for us to do but cut the votive cylinder into three parts, thus making three rings, each of which contained a portion of the original inscription. The first two rings served as earrings for the statue of the god; the two fragments which have given you so much trouble are portions of them. If you will put the two together you will have confirmation of my words. But the third ring you have not yet found in the

course of your excavations, and you never will find it." With this, the priest disappeared. I awoke at once and immediately told my wife the dream that I might not forget it. Next morning—Sunday—I examined the fragments once more in the light of these disclosures, and to my astonishment found all the details of the dream precisely verified in so far as the means of verification were in my hands. The original inscription on the votive cylinder read: "To the god Ninib, son of Bel, his lord, has Kurigalzu, pontifex of Bel, presented this."

Thus Hilprecht's problem was at last solved. But verification was needed, and it soon came.

. . . In August, 1893, I was sent by the Committee on the Babylonian Expedition to Constantinople, to catalogue and study the objects got from Nippur and preserved there in the Imperial Museum. It was to me a matter of the greatest interest to see for myself the objects which, according to my dream, belonged together, in order to satisfy myself that they had both originally been parts of the same votive cylinder. Halil Bey, the director of the museum, to whom I told my dream, and of whom I asked permission to see the objects, was so interested in the matter, that he at once opened all the cases of the Babylonian section, and requested me to search. Father Scheil, an Assyriologist from Paris, who had examined and arranged the articles excavated by us before me, had not recognized the fact that these fragments belonged together, and consequently I found one fragment in one case, and the other in a case far away from it. As soon as I found the fragments and put them together, the truth of the dream was demonstrated *ad oculos*—they had, in fact, once belonged to one and the same votive cylinder.

In the case both of the Assyrian scholar and of Coleridge's Kubla Khan it is clear that the materials lay scattered over the whole floor of the dreamer's mind. In each case the materials were swept with a single stroke into an articulate and architecturally perfect form. Just as the Assyrian scholar had the necessary *information* but could not organize it when awake, Lowes has shown what materials lay strewn in Coleridge's mind awaiting their opportunity in the dream. But despite such studies of the *sources* of dream material, we are left almost as puzzled as we were originally regarding what gives the materials form.

When comparisons are made between these almost instantaneous creations and the works of genius that are hammered out in the sweat of one's brow, we find that the element of strain or volition is conspicuously lacking in the former. The contrast between the Assyrian scholar's failure while awake and his success while dreaming is equaled only by the intensity of effort in the one state, the perfect effortlessness in the other. This may perhaps have been due partly to the removal of outside interferences, partly to the sheer fact that the muscular postural system is involved in the one case and shunted out in the other. But apparently the highest creation may be the consequence of involuntary activity, albeit often following long periods of voluntary concentration; and to consider the dream a supremely involuntary expression might cast some doubts upon the common-place of popular morality, that it is effort which makes the good, stress which gives dignity. It cannot indeed always be shown even that a *preceding phase of effort* is necessary to the dream. A supremely casual attitude seems actually to be the source of many of the greatest and the richest departures from the grooves of daily routine.

This relative effortlessness may mean that *more of the self* is involved in the dream, or at least in many dreams, than can be involved in the acts of waking life. Waking life is an alternation or oscillation between mutually exclusive centers of activity; a perpetual nervous recentering, with a new quest, moment by moment, for drive-satisfying points of anchorage. This must, of course, be true in some degree of the dream also. But the more creative dreams succeed in being creative just because they use a wider range of materials; they allow the dreamer to confront simultaneously a wider variety of appealing materials from the storehouse of his memories.

This is the reason why it has been suggested that the dreamer is a "larger self" than the waking man. Mitchell similarly believes that the hypnotic consciousness is wider than the waking consciousness of the same person. The dream may often be, among other things, a quest in the direction of self-realization, fearing nothing, ashamed of nothing, bogged down by nothing, playing with new poses, trying new combinations, picturing the dreamer as hero and as villain, tasting all the possible and impossible qualities which might conceivably be encountered or never could be encountered in this or another world; in this sense the dream is supreme selfishness. On the other hand, H. E. Starr suggested that over and above the more simple and obvious motives there exists a self-realizing motive based on identification with humanity, that the sociality of man leads to the all-embracing motive of unification with the human family. He called this motive the "Promethean complex." The dream can apparently be anything from the narrowest to the most expansive portrayal of selfhood. It is because the narrower phases have been most intensively studied that we have here deliberately voiced the suspicion that the other pole in the dream continuum, to which experimental access is difficult, lies far indeed from the individualistic and competitive selfhood which western psychology has consistently stressed.

THE DREAM AS AN EXPRESSION OF INDIVIDUALITY

This continuum from narrow to broad is one of many upon which the dreamer may be located. Probably no sphere of personality expression is richer with individuality than dreaming. And if it be argued that people differ only in their manner of arranging the same universal raw material, only in the interrelations between the old familiar themes of human passion, interest, and ego need, the answer again is that dreams differ in every respect in which waking behavior differs—in motivation, in feeling tone, in canalized and conditioned patterns, in figure-ground relations, in hierarchical structure. One man's dreams are little sketches or skits, little flashes of humor. He awakes with a smile on his face and laughs for a moment at the ridiculous nonsense which his involuntary self has dished up; indeed, many a child laughs in his sleep, and often has a fragment of delicious fantasy on his lips in the morning. To others the dream is a chronic and insistent threat; as child or as adult they fear to sleep because of the regularity with which night terrors descend. For one person the dream is a monologue, for another a five-act play. When the projective methods can be adequately compared with dream analysis, the two methods will probably yield not only comparable data on individual drive patterns, but also mutually confirmatory data on the interrelations of drives, the varying feeling tones, and the other personality dimensions, already explored, which distinguish dreamers.

We should expect to find, and we do find, much parallelism between a person's waking fantasy and his dreams. We should expect that individual differences in intelligence and creativeness, as displayed in the dream, would agree well with indices of intelligence and creativeness based upon waking skill in problem-solving and in fantasy. But the dream *outdoes* the waking fantasy in many respects. The material is more vivid—hallucination replaces image—and more elaborately dramatized. Thus the dreams of the blind who have developed keen tactual and auditory discrimination follow the familiar lines of waking imagination but may draw more richly than waking life upon the memories of days before the sight was lost. Where life experience has enriched a modality, as tactual experience was enriched in Helen Keller, the enrichment is preserved in the dream; this "compensation" of one sense by another may be carried even further in the dreaming state than in the waking. When such compensatory skills in manipulating images are supplemented by well-preserved memories from the days when all the senses were intact, the result naturally is likely to be a richer product than the waking life can yield. But just as the waking fantasy tells a story which behavior would not know how to tell, so the still greater removal from reality permits still greater richness, a wider variety of personal idioms, in the dream than in the waking fantasy. The dream, being the least social, is in a sense the freest of expressive acts. It is true that many people carry their consciences with them into their dreams and censor their dream novels; it is likewise true that many dreams are so frank that they are told or even recalled only reluctantly. This matter of moral restraint is only one of a dozen kinds of restraint that waking life imposes. Most dreams have a lush or lavish quality which unambiguously bespeaks greater psychic freedom and creativeness.

It is clear, then, that despite the many overlapping aspects between sleeping fantasy and waking fantasy, the dream is not just a duplicate of any other personality experience. It has the supreme advantage of occurring when we are socially isolated, when the environment provided by sight and hearing is cut off, and when many of our impelling needs to act in one way or another can for the time being be successfully ignored. Autism has much fuller play, and dissociation of many memories and many habitual attitudes occurs. There is some dissociation in all sleep because of physiological factors, but the process is greatly augmented by the autistic exclusion of all that would interfere with the enactment of the scenario. For this reason the dream is often one of the most eloquent spokesmen regarding the content and form of individual personality; but being a special pleader like all the other spokesmen, it must be seen in full articulation with all the others.

No. 2

ONEIROCRITICA AMERICANA*

HARRY B. WEISS

Students of popular American literature appear to have paid little attention to American dream books or to use a dignified name for a trivial subject, Oneirocritica Americana. This may be due to the fact that there is little that is American in the mythology and folklore of our fortunetelling dream books. The literature of dreams, visions, and of the supernatural is enormous and in comparison with this vast body of words, the present article is but a fragment dealing not with serious books on dreams, nor with psychoanalytical interpretations, but with the cheap, paper-covered dream books, containing the absurd and misleading interpretations that have come down to us through the ages and that still circulate and carry conviction to a portion of our population.

Such consideration as these books have received has been either a broad historical survey of their mythological interpretations, or a lump dismissal of all, as misleading and unscientific. Both treatments are justifiable and depend upon one's point of view. The present account is an attempt to trace the history of these books in America from Colonial times to the present.

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The divination of the future by the interpretation of dreams is one of many kinds of fortunetelling and although not as popular now as divination by stars, cards, palmistry, . . . it has not entirely disappeared like divination by fire, cheese, feet, . . .

Dream interpretations have been taking place for thousands of years, and history abounds with references to the important part played by dreams in the lives of ancient peoples and to the oracles, soothsayers and diviners. According to Boissier, the pseudoscience of oneiromany originated from the folklore and priestcraft of ancient Babylon and Assyria. Boissier translated the texts of hundreds of cuneiform inscribed tablets from Mesopotamia and found many to be occupied with the interpretations of dreams in which the entire population of Mesopotamia appeared to have believed. These interpretations dealt with the consequences of a person dreaming he was crowned with gold, or arrayed in silver, or of eating various substances, of seeing certain trees or other plants, and of other actions and situations which occur in dreams. The Old Testament contains many examples of tales in which the future was disclosed by prophets who interpreted dreams. At that time dreams were held in esteem and thought to be of divine command, and the seers and prophets were consulted frequently and held in high repute. Although the divine character of Biblical interpretations was sanctioned by the Christian religion, when the Christians imitated the prophets and practiced their own divination, they were warned by the theologians that many dreams originated from the devil.

In the temples of Appolo and Zeus, the priestesses inhaled the vapor of burning laurel leaves until they were overcome and while unconscious the messages of the gods came from their lips. These were taken down by the priests and given to the devotees who sometimes availed themselves of the privilege of sleeping in the temple and receiving answers to their queries by revelations in dreams induced by the holy atmosphere. For hundreds of years the oracles flourished. In the numerous Greek temples of Aesculapius, in the eighth or early seventh centuries B.C., dream therapy was practiced. Following certain ritualistic washings and sacrifices, the patient went to sleep in the sleeping chamber of the temple and the priest recited prayers, hymns and incantations asking for help for the sick patient. According to inscriptions, Aesculapius, the god of healing, appeared in the dreams of the patient. These dreams were interpreted by the priests and medicine and treatments were administered. According to some accounts Aesculapius appeared in the dream of the patient, diagnosed the disease and mentioned the treatment.

Hippocrates thought that some dreams indicated poor health and that others might be divine. "Such dreams as repeat in the night the man's actions or thoughts in the day-time—representing them as happening naturally—these are good for a man. They signify health. But when dreams are contrary to the acts of the day, and occur about them—some struggle or triumph—a disturbance of the body is indicated. A violent struggle means violent mischief. A feeble struggle—less serious mischief." For example—"To see the sun, moon, heavens, and stars clear and bright each in proper order is good as it indicates physical health in all its signs. But if there is a contrast between the dream and reality, it indicates a physical illness, a violent contrast, a violent illness." Hippocrates then prescribes treatment involving dieting, walks, emetics, hot baths, exercise, etc., as needed. According to Hippocrates, if in the dream sight or hearing is impaired, this denotes disease in the region of the head; when rivers are high, excess of blood; low water indicates defect of blood; dreams of springs and cisterns indicate bladder trouble. To drink clean water in dreams is good, but to drink any other kind is a sign of harm.

Before and during the time of Hippocrates (460?-359? B.C.) people believed that there was a connection between the heavenly bodies and their own fates. To dream about them one way or another meant health or a threat of illness. Of course the ancient peoples were forced to contemplate the heavens more or less continuously, and as a result, the sun, moon and stars entered their conscious and subconscious minds and frequently appeared in their dreams. Nowadays star-lore has been superseded by clocks, compasses, almanacs and calendars. During the Middle Ages, although the people still believed in dreams, they treated the diviners with fear and distrust as they did all who claimed to have occult power, and attitude in contrast to that of the ancients who honored their diviners. Instead of believing in the divinity of dreams, they scented witchcraft, and dreams were more often attributed to the devil.

Thus it is seen that dream interpretation has been practiced from very early times. Artemidorus, an Italian physician and a native of Ephesus, who lived in the second century under the Emporer Antoninus Pius, and who collected reports of dreams by travel, correspondence, and by the purchase of manuscripts, wrote a work in five books entitled *Oneirocritica,* which is really a manual of dream interpretation and which seems to be the father of all dream books that have appeared since his time. His successors for the most part have only made such additions and modifications as seemed necessary to adjust the interpretations to their own times. Artemidorus' work was printed in Greek at Venice in 1518, in Latin at Basel in 1539 and 1544, at Lyons in 1546, in Italian at Venice in 1542, 1547 and 1548. The twentieth edition in English translations was reached in 1722 and the twenty-fourth in 1740. Other early dream books circulated at about the same time. In 1516 at Venice there was published in Latin a work that combined the *Dream Book of Daniel* with the *Dreams of Solomon.* And there are records of several incunabula of the *Dream Book of Daniel,* which continued to appear in vernacular translations, in French about 1510, in English about 1542, etc. Ferdinand Ponzetti discusses dream interpretations in his *Third Part of Natural Philosophy,* published in Rome 1515. An Arabic work on the interpretation of dreams by Achmed ibn Sirin was printed at Frankfurt in 1577 and in 1603 this work, together with that of Artemidorus, was edited by Rigaltius and published at Paris. Jean Tibault, a Lyons astrologer and composer of medical works was the author of a dream book, in which the items are arranged alphabetically. This appeared at Lyons in 1530. Additional works could be mentioned, to show the extent of the circulation of oneirocritical books during these times.

Various views were held about dream interpretation. Ponzetti in the work referred to above, recognized that interpretation was complicated and difficult. He did not believe that, as a science, it could approach the sciences of medicine and grammar. He thought, however, that what had been observed and found to be true over long periods of time, could not be ignored. He believed both in divine prophecy and natural divination, the latter being due to the ability of certain persons to "rise above man's usual physical powers," and predict the future. In his compendium of natural philosophy of 1560, Sebastian Fox Morcillo of Seville accepted God's prophetic dreams, but rejected divination "made by some instinct of nature or power of the rational soul when free from cares." Augerius at Lyons in 1549 did not think much of the dream books attributed to Daniel and Solomon. He classified dreams as being of divine, natural, and diabolical origin, and thought that there was a correct but not superstitious art of interpretation based partly on a divine force affecting the mind, and partly from a "certain convenience and conjunction of nature," the whole being built up further by constant daily observations.

. . . Dream books flourished in Great Britain and in various European countries as noted previously in part, by references to the work of Artemidorus and its translations, and to other dream book authors during the sixteenth to the eighteenth centuries. Many dream books of the chapbook type circulated in England during the seventeenth century and the first half of the eighteenth. There was, for example, *Dr. Trotter's Fortune Book, resolving all manner of questions relating to life, long or short; an account of the prosperous days in the twelve months of the year; the interpretation of dreams. §c. To make a young woman exceedingly beautiful, and an old woman very handsome.* This was printed . . . London, in 1708. In this book, to dream you swim in tempestuous waters indicates you will have much trouble, to dream you hear music signifies mirth and jollity; to dream of much gold denotes riches; to dream of many suns and moons signifies you will be happy in children who will rise to great promotion; and so on.

Ashton in his *Chapbooks of the Eighteenth Century,* London, 1882, mentions *The Old Egyptian Fortune-Teller's Last Legacy,* printed in . . . London, which contains a chapter on dream interpretations, . . .

In addition there were *The Golden Dreamer, A Groatsworth of Wit for a Penny, or the Interpretation of Dreams, Johnson's New*

Dream Book, The Dreamer's Oracle, The Universal Dream Book, Dreams and Moles, The Pleasing Dreamer, The Royal Dream Book, The Dreamer's Dictionary, and many others, published in London and other English cities during the latter part of the eighteenth and first half of the nineteenth centuries.

Nearly all of these were published as twenty-four page chapbooks and a few had colored, folding frontispieces. Many dream book titles of English chapbooks may be found in the *Catalogue of English and American Chapbooks and Broadside Ballads in Harvard College Library* (Cambridge, Mass., 1905).

Of course dream books continued to be published not only in England, but everywhere long after the chapbook era had passed and in fact are current in all countries at present. In *The Literature and Curiosities of Dreams,* published in London in 1865, Frank Seafield . . . the author states that "oneirocriticism, once the revelation of the divine . . . is now an instrument by which a chapbook pedlar may best ascertain what is the smallest number of lies which Cinderella will insist on in return for her penny, without considering herself cheated." And Charles Mackay in his *Memoirs of Extraordinary Popular Delusions and the Madness of Crowds* (London, 1852) said, . . . that dream books were in large demand in England and France and that two titles were very popular in England, one being *Mother Birdget's Dream Book and Oracle of Fate* and the other the *Norwood Gipsy*. These sold from a penny to sixpense, to the extent of more than 11,000 copies each year for at least a period of thirty years. In London alone at that time an edition of each had been appearing yearly for fifty years in addition to having been reprinted in Manchester, Edinburgh, Glasgow and Dublin.

What has been said so far is by way of an introduction to the subject of American dream books. . . . American dream books are, for the most part, a continuation of former dream books extending back to Babylonian times and they are American, mainly because they were published in America. The first American publication that I was able to locate containing popular dream interpretations is entitled *The New Book of Knowledge . . . The Interpretation of Dreams . . . Boston: Printed for A. Barclay, near the Three Kings in Cornhill, MDCCLXVII.* This together with another copy bearing the imprint *Boston: Printed and Sold by Z. Fowle, at his Printing-Office in Back-Street, near the Mill-Bridge* (1767) is in the library of the American Antiquarian Society. In addition to its dream interpretations this work contains material on the effects of the planets upon man, on meteors, . . . The same title is listed by Evans, also from Boston, Printed and sold by *William M'Alpine in Marlborough-street,* 1767.

. . . It is my belief that neither Erra Pater nor William Lilly had anything to do with either *The New Book of Knowledge* or *The Book of Knowledge* and enough has been said to show that the appearance of the latter in America was subsequent to its publication in England.

In *The Book of Knowledge* printed . . . in 1795, seven pages are devoted to the interpretation of various dreams. Many of the dreams deal with the anatomy of the dreamer. For example, if one dreamed that one had a great head, or long hair, or many ears, or a sharp sight, or a large nose, or fat cheeks, or thick shoulders, or dirty feet, or long nails, or broken ribs, or a broken gall bladder, etc., then good or bad fortune would result. Other interpretations dealt with dreams about hanging, being drunk, winning at dice, dogs, mules, adders, marrying, bathing, cutting bacon, catching bees, hearing bells, gathering apples, coffins, money, etc. . . .

The interpretations in *The Book of Knowledge* are all brief and instead of being arranged alphabetically, they are printed haphazardly. In 1795, however, Keating's Book Store of Baltimore brought out *The Universal Interpreter of Dreams and Visions,* in two parts. The first part discusses sleep, sleep walking, how departed souls communicate with the living by means of dreams, how man can communicate with spirits in his dreams, divine dreams, early interpreters and remarkable dreams. The second part entitled *Universal Dream Dictionary* is an alphabetical list of dreams and their interpretations, according to such distinguished authorities as Aristotle, Artimedorus, Lord Bacon, Ashmole, Julianus, Theopompus and others. This dream dictionary is much more complete and comprehensive than the interpretations in *The Book of Knowledge* and appears to be the first American publication worthy of the name, in spite of the fact that the same interpretations are to be found in English dream books.

According to the *Universal Dream Dictionary,* to dream of an anchor signified great assurance and certain hope; ants betokened an earthly, covetous mind; to eat beans, signified trouble and dissentions; filberts, trouble and anger; to make pies denoted joy and profit; to drink vinegar meant sickness; to cut bacon signified the death of some person; to dream of a crocodile meant pirates or robbers by sea or murders or wicked persons, and so on. Some dreams, not only in this but in all dream books were capable of various interpretations depending upon circumstances surrounding the main object that was dreamed about. . . .

In 1797, *The Universal Dream-Dictionary* was published at Philadelphia; in 1804, *The Universal Dream-Book or Interpreter of Dreams and Visions,* at Baltimore; in 1816, *The New Dream Book* at Baltimore and Wilmington; in 1817, *The Universal Dream Book* at Philadelphia, and in 1821, *Old Mother Shipton's Universal Dream Book* at New York. Except for some omissions, abridgements, or changes in wording the interpretations in all these books are similar to those found in part two of *The Universal Interpreter of Dreams and Visions,* Baltimore, 1795. In *Old Mother Shipton's Universal Dream Book* that was designed to sell cheaply, the interpretations are greatly abridged and changed in wording.

In passing it may be noted that during the last few years of the eighteenth century and the first part of the nineteenth century, many chapbook publishers in London, and other English towns brought out twenty-four page dream books entitled *The Universal Dream Book, The New Universal Dream Book,* and *The Universal Dreamer.*

In addition to foretelling future events by dreams, many dream books contain the "art" of divination by cards, dice, dominoes, moles, palmistry, etc. When this happens the title is changed to include both fortunetelling and dreams. *The Complete Fortune-Teller and Dream Book, or Infallible Guide to the Hidden Decrees of Fate* was printed at Concord in 1829 "for the publisher."

I am certain that many more dream books were in circulation during these early times than is indicated by the few copies that have come down to us.

About 1835, U. P. James of Cincinnati brought out the *Complete Fortune-Teller and Dream Book* that had appeared at Concord in 1829, and about 1848 he published *Sibylline Oracles: or, Dreams and Their Interpretations.* In these two dream books each has a somewhat different list of things dreamed about and when they cover the same topic the interpretations may or may not be contradictory. . . .

. . . Other early publishers of dream books were Philip J. Cozans of 116 Nassau Street, I. P. Beadle & Co., Dick & Fitzgerald, F. A. Brady, and W. Radde, all of New York City. Dream books are known to have been published by these firms at least during the period 1855-1865, . . . In 1862 and 1863 Dick & Fitzgerald brought out *The Golden Wheel Dream-Book, and Fortune-Teller* and *LeMarchand's Fortune Teller and Dreamer's Dictionary.* In these volumes, in addition to dream interpretations, one is advised how to tell the future by moles, finger nails, the shape of the head, . . . In both books, many of the dream interpretations are similar. Some are identical. Sometimes the wording differs. To dream of bed-bugs denotes strife and quarrels; buttermilk, losses from an extension of business; to dream of bright and pleasant gaslight shows success in love making; if the gas is dim and looks unnatural, your sweetheart will either leave you or die; caterpillars denote misfortune by secret enemies; and if a man dreams that he sees a pole-cat, he will marry a beautiful woman; if a woman, she will marry a handsome man. If this delightful animal makes an attack upon you—in your dreams—it is a sign you will suffer from the slander of enemies.

These two dream books of Dick & Fitzgerald differed in one respect from all previous dream books that I examined. Each dream interpretation was followed by one, two, or three "lucky" numbers. In addition *The Golden Wheel Dream Book* included an alphabetical list of words, without interpretations but followed by "lucky" numbers, and also numbers for dreams of persons' names, cards, dominoes, and names of the months and days. Strange as it may seem, the numbers in both Dick & Fitzgerald dream books under consideration, are the same for the same dreams. There are records long before 1862 of persons playing numbers that came to them directly or indirectly in their dreams. Job R. Tyson in a *Brief Survey of the Great Extent and Evil Tendencies of the Lottery System as existing in the United States,* Philadelphia, 1833, mentions a woman who had insured three numbers that she had dreamed about. . . .

If you had lived in 1862 and possessed a copy of *The Golden Wheel Dream Book,* and dreamed of alum, 62, 12, or asparagus, 16, 40, 1, or dunghill, 77, or windmill, 343, 10, you would have played the numbers following these words. However, in 1942, according to Professor Konje's *Combination Dream Book,* the lucky numbers for these words are, alum, 741, asparagus, 161, dunghill, 120, and windmill, 354. All of which is very mystifying. Whoever thought of attaching lucky numbers to dream interpretations certainly made things much easier for the numbers players.

From 1862 on, nearly all dream books published lucky numbers and advertised this fact upon their title and cover pages. . . . Except for dream books published up to about 1880, which I was able to find only in a few institutions, I had no particular difficulty in purchasing on the market at the present time fifty-seven different titles. These date from 1890 to 1942, with most of them ranging from 1915 to 1942. Of these fifty-seven titles, seventeen contained dream interpretations without lucky numbers. Twenty-seven contained interpretations with numbers. Thirteen, mostly recent, consisted simply of lists of words with numbers. Instead of an intriguing interpretation in these books, one is confronted by cold, business-like numbers. Dreamers who use these are apparently only interested in turning their dreams into cash and have no interest in the technique of oneirocriticism.

. . . numerous American publishers have brought out dream books since 1860. Some firms were more active than others, not only in the publication of numerous dream books, but of cheap literature of a different sort. . . .

About 1880 or 1885 Wehman Bros., of New York, a continuation of the firm of Henry J. Wehman, Published cheap books on . . . dreams, . . . etc. . . . The same is true for I. & M. Ottenheimer of Baltimore, which firm started about 1890. A recent catalogue of this firm lists thirty-five dream book titles, . . . A few other firms, founded more recently, that include dream books in their output, are The Arthur Westbrook Company, Cleveland, Ohio; Shrewsbury Publishing Co., Chicago; Mutuel Publishing Co., Youngstown, Ohio; Caspar, Krueger, Dory Co., Milwaukee, Wis.; G. Parris of White Plains, N. Y.; and the Stein Publishing House, Chicago. . . . G. Parris, . . . now in White Plains, N. Y., . . . publishes seven different dream book titles. Most dream books are copyrighted in spite of the similarity of many of their interpretations. And as the same dream book is sometimes published by more than one firm, it is apparent that this is done by arrangement with the owner of the copyright. . . . Copyright dates on dream books are not necessarily dates of first publication. A publisher may bring out today, under proper authorization, dream books that were copyrighted years previously. Any work published prior to 1888 is now in the public domain, likewise works copyrighted more than twenty-eight years ago and not renewed at the proper time.

American as well as other dream books are full of similarities and contradictions. Although many agree in the interpretations of some of the same objects, others do not. It has been stated that in modern dream books, the dreams are interpreted by contraries. For example, if one dreams about gold or silver, one may be without either, but this rule does not hold good in enough cases to be considered a rule. In fact there are no rules and no system of interpretation, so far as I could discover.

In the *Book of Knowledge* (Portsmouth, N. H., 1795), to hear bells, in a dream, signified disgrace and trouble. In the *Dictionary of 1,000 Dreams* (Chicago, 1941) this dream was a forerunner of joy and gladness. To dream of gathering apples in 1795 meant vexation from some person or other. In 1941, this dream signified that your loved ones would prove to be true and constant to you. At least these are the interpretations of these two paricular books.

In the *Complete Fortune-Teller and Dream Book* (Cincinnati, circa 1835), "To dream of knives is very unpropitious; it betokens lawsuits, poverty, disgrace, strife and a general failure in the pursuit of your projects; in love, it shows that your sweetheart is of a bad temper, and unfaithful, and that if you marry, you will live in enmity and misery." . . . in 1891, the *Witch Doctor's Illustrated Dream Book* stated that knives "are suggestive of quarrels: you are likely to become involved in a law suit, to separate from your sweetheart, or to be divorced." In 1835 one had to live in misery. In 1891 divorces were easier to get and so the dream books were changed accordingly. However, no such modernization was necessary with respect to ague. According to both dream books, circa 1835 and 1891—"To dream you have an ague, denotes nothing very particular, more than you are in danger of becoming a drunkard and a glutton. If you have any relation or friend that is ill, it denotes they will recover. And if you have a lawsuit, that it will be settled in your favor. If you are in love, it forewarns you, that if you do not immediately marry, you will lose your mistress." On the other hand, in 1835, "To dream you see an oven, foretells that you are about to be separated from your family by changing your present residence: it shows you an attack by thieves in some by-place, and also that your sweetheart is of a roving and fickle disposition, little likely to make you happy," but in 1891, "To dream of an oven implies the near approach of a wedding in which one of the partners comes from a distant foreign country."

In tracing the supposed meaning of a dream through various dream books issued over a period of time, one finds both similarities and contradictions. . . .

From 1804 to 1942 to dream of beans meant about the same thing, trouble in one form or another. The interpretations for dreams about making pies were the same from 1804 to 1909. After 1909, some dream book makers, realizing that more and more pies were being baked by commercial firms, and that it was more common to dream of eating rather than baking them, changed the conditions of the dream to eating and varied the interpretations. From 1804 to 1942 dreams of vinegar drinking show little change in meaning.

Of the "lucky" numbers attached to interpretations, these vary, among the dream books, even more than the interpretations. Below are shown the numbers following dream interpretations about ants, beans, pies and vinegar, from nine dream books. They are dissimilar except for three dream books published in 1886, 1887 and 1930, that came from the same firm.

LUCKY NUMBERS ATTACHED TO DREAM INTERPRETATIONS
1863 to 1942

Date of Dream Book	*Dream About Ants*	*Dream About Beans*	*Dream About Pies*	*Dream About Vinegar*
1863	7, 49, 20	72, 18, 11	—	29, 6, 76
1886	2, 7, 41	2, 20, 25	—	13, 61, 66, 71
1887	2, 7, 41	2, 20, 25	—	13, 61, 66, 71
1891	4, 57, 13	3, 1, 62	—	9, 48, 67
1928	230	781	—	631
1930	2, 7, 41	2, 4, 11, 20	2, 3, 69	13, 61, 66, 71 — to dream of 3, 13, 29, 76 — to drink
1931	302	723	101, 191	463 — to drink 495 — to see others drink
1937	723	002	605	570
1942	407	120	569	571

On the assumption that one should not expect the same numbers over a period of eighty years, an examination was made of four contemporary dream books ranging in dates from 1926 to 1942. It may be noted below that for the items dreamed about, the numbers are different for each dream book. If you dreamed about violets and looked it up in *Policy Pete's Dream Book,* you would play 192. If you consulted *Policy Joe's Dream Book,* you would play 435, and so on. . . .

Interpretations, as well as numbers, differ among contemporary dream books. If you dream of bagpipes, this is unfavorable and indicates matrimonial worry and difficulty according to the *Mystic Dream Book* of 1937. But in *A Dictionary of 1000 Dreams,* 1941, it means that you can expect immediate relief from unpleasant circumstances. If you dream of rice the *Mystic Dream Book* warns you to be careful of your plans because they are ill advised and *A Dictionary of 1000 Dreams* predicts a long and pleasant journey.

. . . In *The Golden Dreamer; or, Dreams Realized, Containing the Interpretations of a Great Variety of Dreams,* published

LUCKY NUMBERS FROM FOUR CURRENT DREAM BOOKS

Items Dreamed About	*Policy Pete's Dream Book 1933*	*Policy Joe's Dream Book 1942*	*H. P. Dream Book 1926*	*Lucky W. I. N. Dream Book 1942*
Abcess	474	—	—	321
Castor Oil	891	542	857	—
Guinea Pig	039	652	145	—
Milkmaid	312	454	442	—
Peanuts	172	354	902	463
Rice Pudding	563	282	171	389 Rice only
Suspenders	686	344	022	—
Tripe	656	459	093	267
Violets	192	435	227	237
Wheelbarrow	987	356	438	074

at Glasgow about 1850, the following amazing (for a dream book) statement appears at the end:

"To the reader. The foregoing pages are published principally to show the superstitions which engrosed the mind of the population of Scotland during a past age, and which are happily disappearing before the progress of an enlightened civilization. It is hoped, therefore, that the reader will not attach the slightest importance to the solutions of the dreams as rendered above, as dreams are generally the result of a disordered stomach, or an excited imagination."

Dream books have circulated in America over the past 175 years, more particularly over the past 150 years. During the last fifty years, they appear to have been relatively more abundant than at any other previous time. During the years immediately preceding and following 1800, various accounts of individual dreams were published, dreams or trances in which visions of heaven and hell appeared to such persons as Jane Cish, Jacob Green, Nathan Culver, Hezekiah Goodwin, Isaac Watts and others, but these are not really dream books and lie without the scope of this article. The almanacs of this period sometimes carried accounts of remarkable dreams and many years later dream interpretations, as found in the dream books, occasionally made their way into them, but not extensively.

The early dream books were drab little affairs, sometimes with a frontispiece and infrequently with an illustration on the first cover page. About 1860 colored illustrations began to appear on their cover pages and from then on, they increased somewhat in size and their colored illustrated cover pages became brighter and gayer. A few illustrations have always appeared in the text of occasional dream books, but most of them are devoid of any such embellishments. Over a period of 150 years many interpretations have remained remarkably uniform, while others have been changed. Some subjects of dreams have been dropped and others have been added. We no longer dream of sack-posset[1] or of playing the virginals.[2] New subjects of dreams, on the whole, have been slow in appearing in modern dream books, but that it is now possible to find, in some, along with the old subjects, such new ones as aeroplane, aviator, locomotive, camera, chewing gum, constipation, delicatessen, fountain pen, hack license, hamburger steak, ivory soap, jello, jazz, laxative, nabisco ice cream, stenographer, strike, subway, wrist watch, vanity box and zinc ointment, demonstrates how new folklore of this particular brand is manufactured. As for the most recent dream books that consist of long lists of words and "lucky" numbers, these have little general appeal, but no doubt they are as useful to some people as telephone directories are to others. As for the foreign language dream books, a few titles of which are included in the check list, these do not differ in their contents from their American relatives.

I hope that no one who reads this account will conclude that I am opposed to dream books. I have simply put down what I have found from an examination of them, since they began to appear in this country. Although for most of us they have absolutely no standing from the viewpoints of either literature, or prediction, nevertheless they are accepted seriously by a small proportion of our population, and I would not deny to this small population their right to believe in this particular type of folklore. All of us acquire folklore of one sort or another on such things as capitalism, cigarettes, political platforms, etc., some of which is difficult to shed, even when our beliefs are shown to be without foundation. A serious belief in dream fortunetelling is simply part of the behavior pattern of some people.

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[1] Sack-posset, hot milk curdled by ale or wine and spiced.

[2] Virginals, small, legless, rectangular spinet popular in the sixteenth and seventeenth centuries.

No. 3

THE HISTORY OF DREAM THEORY*

HAROLD GRIER MCCURDY

The handling of the ancient history of dream theory in Freud's *Interpretation of Dreams* piques the reader's curiosity. The references are sketchy, they are apparently from secondary sources, and they omit a number of important names. The aim of the present article is to supplement the historical section of Freud's work by a more detailed examination into some of the ancient writers. Unfortunately, Büchsenschütz's essay on which Freud relies for information about this period is unavailable to me.

I

Three essays by Aristotle in the *Parva Naturalia* are the chief contribution on dreaming preserved to us from classical antiquity. Taken together with a few remarks from Plato, and with due allowance for the partially obsolete physiology, they provide a theory which is decidedly modern in tone.

The key concept for Aristotle is sleep. Sleep opens the way for dreaming by reducing the intensity of sense-activity. This torpor of the senses is an expression of a change in the central organ of consciousness, the heart, which, because it has become deeply involved in the physiological processes of nutrition accounting for the state of sleep, no longer functions at maximum efficiency. The organs of sensation, being subsidiary to the heart, are likewise affected. There is thus an inverse relationship between

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*Abridged from the *Psychological Review, 53:*225-233, 1946. Reprinted by permission of the author and the American Psychological Association, Inc.

nutrition and sensation. . . . Dreaming is a low-level sensory activity; it cannot occur when the heart and sense organs are completely absorbed in nutrition. But neither can it occur when the senses are fully active. Sleep is a prime requisite.

But what is the nature of sensory activity during sleep? Aristotle approaches this question after taking note of certain waking phenomena. He demonstrates by reference to after-images and sensory adaptation that the activity of the sense organs is normally prolonged beyond the moment of actual perception; or, in other words, that stimulating objects set up processes in the sense organs that continue after the objects are withdrawn. He demonstrates besides, by an example which sounds curiously magical but which may not be entirely so, that the sense organ may impose some of its own qualities on the object. The senses, then, carry on certain activities which are not strictly dependent upon the external stimulating objects. These activities, or the images to which they give rise, may be mistaken for real objects, especially when emotion is present. He supports this conclusion by several examples. He then touches on the important idea that judgment regarding perceptions or images and the power of having them (phantasy) are separate functions. It follows logically that consciousness may be full of images and deficient in judgment, emotion enriching it in the first way and impoverishing it in the second. This is precisely Aristotle's conclusion. In sleep judgment is inhibited, the emotions have full sway, and the subliminal sensory activities, which are not noticed during the day because of the powerful trends of genuine perception, take on the character of reality. The images stream along in the moving blood, popping to the surface as the suppressing forces relax here and there, and pass for real so long as there is no awareness of being asleep. The images may continue to appear even after one has become aware of being asleep; but they are not then judged as real. The dream is an illusion. When it passes over into the perception of real external objects, as when one is affected by the light from a lamp and judges it as such and opens his eyes to find the lamp really there, it has ceased to be a dream.

Aristotle gives small credence to divinely inspired prophetic dreams. Dreams may be joined to the future, however, in three ways: as token, as cause, and as coincidence. The small sensory impressions which enter into dreams may betoken bodily changes, such as precede an illness; the images of the dream may be the starting-point, and hence the cause, of waking thoughts that issue in action; and finally, among the great variety of images which invade the dreaming mind, especially in the case of flighty persons, some are bound to coincide by chance with subsequent realities.

Plato is more favorably inclined toward dream divination than his dry-minded pupil. In the *Timaeus* it is anatomically provided for. But it is mainly in his discussion of the relation between dreaming and desire that he catches the attention of the modern reader. It is true that Aristotle speaks of dreams as conforming to the emotions of the dreamer; but he does it so incidentally, he is so much more concerned with the sensory and intellectual aspects, that the remark loses its effect. Not so with Plato. Just at the crisis of the discussion about the character of the tyrant, in the opening of the ninth book of the *Republic,* in a dramatically tense digression, Socrates is made to say that dreams reveal the violent and lawless desires which exist in every man. If this were all, it might be passed by as a mere appercu. But the point is dwelt on very intently, very seriously, as offering a much needed ingress into the depths of human personality; and it is developed, though briefly, into a full theory of the dream. The omission of any reference to this theory in Freud's book is astonishing. Plato's theory is that when the rulership of reason is suspended during sleep, the other two elements of the soul, desire and the spirit of anger, reveal themselves in unmitigated viciousness. The soul, in this state, is ready to attempt incest, murder, and sacrilage. Even the most decent men express these criminal tendencies in their dreams. There are, however, morally superior dreams. These occur when the two lower elements of the soul have been lulled to rest by moderate satisfactions and reason has been stimulated to heightened activity. It is clear that Plato regards the dream as an expression of the dynamics of the total personality.

When we turn to the *De Rerum Natura* of the Epicurean atomist, Lucretius, we encounter a much less psychological theory. Here the images are said to originate not in any operation of the mind but in the external world itself. The atomic combinations, whether shed from the surface of solid objects or generated spontaneously in mid-air, crowd continuously and fortuitously into the mind of the sleeper. The illusion of movement in the dream is produced by a rapid succession of these static images: a cinematic effect. It is perfectly in keeping with Lucretius' theory that absurdities such as centaurs should crop up in the process; by chance-collisions various atomic patterns may fuse together into one strange form even before they appear to the dreamer. It is a much more serious problem how it happens that the dream-image so often conforms to the character of the dreamer and takes its place in a logical, or at least dramatically coherent, sequence. In a famous passage he adduces many examples of this fact. But he is not able to deal successfully, even in his own opinion, with the problem he raises. He considers the possibility that the will in some mysterious way commands the desired images, to come in a moment's space from wherever they may happen to be; and then turns dissatisfied from this answer to the one that every kind of image is present already wherever the dreamer may happen to be and enters consciousness when it is attended to, while those images which are not attended to drop into the unconscious background. Neither answer pleases him, and he dismisses the whole question as unnecessarily subtle. Indeed, he immediately warns the reader against looking for purpose anywhere in nature. All is chance. The human will, whose intrusion into the discussion seemed to ruffle his atomistic patience, is after all only a mechanical event following on the chance incursion of an atomic pattern into the temporary atomic organization which Lucretius calls the mind. Regardless of the philosophical adequacy of his position, Lucretius does an important service in presenting a vivid account of the theory that the elaboration of the dream takes place largely in the objective world outside the dreamer's consciousness—a view that harmonizes as well with the popular demon theory of his own times and later as it does with the atomic theory of Democritus.

II

Plato and Aristotle are the ancient precursors of Freud within the classic tradition. But neither occupies himself to any degree with the work of specific dream interpretation. That was an interest which demanded the practical turn of mind of a soothsayer or a physician. Such a man was Artemidorus of Daldis, a physician of the time of Antoninus Pius, whose *Oneirocritica* has served as a manual of dream interpretation and as a progenitor of popular dream books for centuries. In the dedicatory epistle of the edition here used, published at Lyons in 1546, the Latin translator, Janus Cornarius, physician, apologizing for bringing out such a work in 'hoc turbulentissimo seculo,' notes that even in his own day Artemidorus was regarded with scant respect by the philosophers. Cornarius feels impelled to support his case by citing Hippocrates, Galen, and the Bible on the importance of dreams.

Artemidorus distinguishes first of all between two classes of dreams: the *somnium* which forecasts the future, and the *insomnium* which refers to contemporary matters. The *insomnium* is affected by states of body, or of mind, or both. "The lover occupies himself with his sweetheart, the fearful man sees what he fears, the hungry man eats, the thirsty one drinks." As for the *somnium,* it is sometimes a clear representation of coming events, sometimes symbolical. The general definition of *somnium* is "a movement or notion of the multiform soul, signifying good or evil in the future." Every dream of important and serious men must be regarded as a *somnium,* because their souls are not disturbed by the hopes and fears and appetites which produce *insomnia.* Others, common people and dream interpreters alike, are subject to *insomnia.* The dreams of interpreters, however, tend to be obscured by their knowledge of symbolism. "The ordinary person sees in his sleep just what he desires or fears. But those who are skilled in interpretation discern their wishes through the veil of symbols. If indeed anyone who is uninformed in these matters has symbolical dreams they must be taken as *somnia,* not *insomnia.* For example: In the case of one who can understand symbols, either because he has chanced to read books on dream interpretation, or because he has dealt with dream interpreters, or because he has a talent in that direction, if it happens that he is in love with some woman, he will not see the object of his passion, but instead a horse, or a mirror, or a ship, or the sea, or a female animal, or a woman's garment, or some other thing which may represent a woman symbolically." One may conclude that Artemidorus judges symbolical dreaming to be beyond the layman's normal range and to signify, therefore, in his case, the irruption of prophetic powers.

In general it is highly important to note whether the dream corresponds with the dreamer's ordinary ways. Whether it is prophetic of good things or bad, or whether it is prophetic at all, depends on the harmony or lack of it between the dream and the dreamer's daily life. There are six critical points to be considered: *natura, lex, consuetudo, tempus, ars, nomen.* That is to say, the interpreter wants to know whether the dream events are natural, lawful, and customary for the dreamer, what the circumstances were at the time, and what the dreamer's occupation and name are. Artemidorus' handling of some of these points, along with some very characteristic etymologizing, may be seen in the chapter entitled 'On Dreaming of Having One's Head Shaved,' which I translate here as an example of the method.

"To dream of having one's whole head shaved, except in the case of priests of the Egyptian gods, and those who study how to raise a laugh, and those whose custom it is to shave, for whom it is good, is in general a bad dream, because it signifies the same thing that nudity does, and indeed foretells sudden and dire misfortunes. To sailors it clearly portends shipwreck, and to the sick a most critical collapse, but not death. For the shipwrecked and men preserved from a serious illness are shaved; the dead, not at all. As to the aforementioned, it is a good dream because of their custom of shaving. . . .

. . . Artemidorus appreciates the influence of desire in the formation of dreams, and . . . he is unwilling to apply his system of symbols without going into the circumstances of the dreamer's life. He particularly cautions the reader against the time-honored method of interpreting the dream by contraries. The sample dreams given in his Fifth Book have a very authentic appearance. His interpretations, however, waver curiously between farfetched prophesying and shrewd judgments of character. I translate two for the sake of example.

"An athlete dreamed that he became pregnant and gave birth to two black female children: he became blind, and his blinded pupils *(pupillae prolapsae)* became black."

"A woman dreamed that her lover gave her the head of a pig. She conceived an aversion for her lover, and gave him up. For a pig is odious to Venus."

III

A pagan author like Aristotle is free to deny the prophetic nature of dreams at his pleasure. Christian authors, faced by the numerous examples of prophetic dreams in the Bible, are in a different position. They are bound to admit that such dreams are possible. They are almost equally bound to develop a theory of dreaming which separates dream prophecy from rational prediction, since God, not the dreamer, is the author of prophetic dreams. On the other hand, the silliness and wickedness of many dreams will prevent the attribution of all without exception to the Divine Power. The exigencies of the Christian view require something different from Aristotelianism, or popular oneiromancy.

According to the authoritative Tertullian, writing about 203 A.D., sleep is a kind of death during which the always active soul is temporarily absent from its body. Dreaming is simply the activity of the soul deprived of its instrument. . . .

One might gather . . . that Tertullian thinks of the dream as something produced by the soul. But it appears that that is erroneous. The soul is a passive spectator, or at the most a reacting spectator; dream experience corresponds to realities over which the soul has no power. It is not the soul which produces the substance of the dream, but God or nature or (most commonly of all) the demons. This theory has some kinship with the Democritean view exemplified in Lucretius.

Tertullian, however, is not consistent. He does not manage to believe without question that the soul is powerless to produce anything, even imaginations, and is thus always a pure mirror of consciousness held up to a world of realities independent of itself. But he tries hard, as if determined not to fall into the gulf of solipsism which opens beneath all those theories that assign a creative power of its own to the soul, whether that be the commonly assumed power of imagination, or the more exotic one by which projection of new realities into the external world is supposed to take place.

A subtler and more systematic author of Christian persuasion is Gregory of Nyssa. Several passages in his treatise *On the Making of Man* (380 A.D.) are devoted to our subject. In general, he treats the dream naturalistically, following Plato, Aristotle, and the physicians. But he distinguishes himself from them by his typically Christian insistence on the simplicity, unity, and independence of the soul, which for him is something different not only from the body but also from its own faculties of nutrition, sensation and reason. Also, he makes a place for prophetic dreams inspired by God: not, however, as Tertullian does, but by asserting that such dreams are miraculous occurrences, or rather that they are not dreams in the ordinary sense at all. "But if Daniel and Joseph and others like them were instructed by Divine power, without any confusion of perception, in the knowledge of things to come, this is nothing to the present statement; for no one would ascribe this to the power of dreams, since he will be constrained as a consequence to suppose that those Divine appearances also which took place in wakefulness were not a miraculous vision but a result of nature brought about spontaneously. As then, while all men are guided by their own minds, there are some few who are deemed worthy of evident Divine communication; so, while the imagination of sleep naturally occurs in a like and equivalent manner for all, some, not all, share by means of their dreams in some more Divine manifestation."

Except for these occasional miraculous communications from the Divine, dreams are considered by Gregory as belonging to the order of nature and subject to psychological explanation. Sleep, he says, is a condition in which the sensory faculty of the soul is at rest; and along with that, the intellect also; for the intellect, or mind, or rational faculty, is conjoined with the senses. The absurdity of dreams is evidence, indeed, that reason has nothing to do with them. Dreaming, then, must be assigned to the third main faculty of the soul, the nutritive, which alone remains active during sleep. It is not a function of the nutritive faculty, of course, to produce images: these have fallen into it by chance, as it were, from the waking operations of the higher faculties. The soul is, however, not completely transformed by sleep. There is simply a reversal of the waking hierarchy of faculties, so that the two higher faculties are dominated by the nutritive.

So much for Gregory's theory of the dream in general. When he comes to deal with dream content, he has a number of penetrating observations to make, some of them original with himself. The dream content, he says, has reference either to memories of daily occupations, or to the state of the body at the time. He repeats what many others have said, that "the thirsty man seems to be among springs, the man who is in need of food to be at a feast, and the young man in the heat of youthful vigor is beset by fancies corresponding to his passion." But he adds to all this a personal observation that catches sight of the connection, in a concrete instance, between bodily condition and dream imagery. He writes: "I also knew another cause of the fancies of sleep, when attending one of my relations attacked by frenzy; who being annoyed by food being given him in too great quantity for his strength, kept crying out and finding fault with those who were about him for filling intestines with dung and putting them upon him: and when his body was rapidly tending to perspire he blamed those who were with him for having water ready to wet him with as he lay: and he did not cease calling out till the result showed the meaning of these complaints: for all at once a copious sweat broke out over his body, and a relaxation of the bowels explained the weight in the intestines. The same condition then which, while his sober judgment was dulled by disease, his nature underwent, being sympathetically affected by the condition of the body—not being without perception of what was amiss, but being unable clearly to express its pain, by reason of the distraction resulting from the disease—this, probably, if the intelligent principle of the soul were lulled to rest, not from infirmity but by natural sleep, might appear as a dream to one similarly situated, the breaking out of perspiration being expressed by water, and the pain occasioned by the food, by the weight of the intestines." Gregory relates this striking observation to the general view of the physicians who say that their patients reveal the nature of their complaints in their dreams, making possible the differentiation of stomach ailments from cerebral, etc. Besides, dreams reveal the dreamer's general character, distinguishing between the brave and the cowardly, the lascivious and the continent, the liberal and the avaricious.

Finally, a word must be said about Gregory's view of the passions, since they, in his opinion, contribute to the formation of dreams. The fountain-head of all the human passions, he says, is sexual reproduction. He seems to mean by this two things: first, that sexual desire is the fundamental passion; and second, that through this manner of reproduction man is held down to the level of brute life and shares in its nature. "For those qualities with which brute life was armed for self-preservation, when transferred to human life, become passions; for the carnivorous animals are preserved by their anger, and those which breed largely by their love of pleasure." But the animal tendencies are multiplied and intensified in man by the action of reason itself, which is corrupt through sin. "Thus our love of pleasure took its beginning from our being made like the irrational creation, and was increased by the transgressions of men, becoming the parent of so many varieties of sins arising from pleasure as we cannot find among the irrational animals. Thus the rising of anger in us is indeed akin to the impulse of the brutes; but it grows by the alliance of thought: for thence come malignity, envy, deceit, conspiracy, hypocrisy." The reader will sense in these words a foreshadowing of more than one modern author.

The last ancient writer on dreams to be considered here is Synesius of Cyrene, once a pupil of the famous Neo Platonist Hypatia, and later the somewhat unorthodox Bishop of Ptolemais, who wrote his *De Insomniis Liber* in the latter part of the fourth century. The work was edited and translated from the original Greek into Latin by Dionysius Petavius early in the seventeenth century. Before that, in the fourteenth century, it had received a lengthy commentary by the Byzantine historian Nicephorus

Gregoras. Apparently it may be considered a work of some influence for a period of several hundred years.

Synesius believes in divination generally: the world is everywhere connected, and happenings in one part may set up sympathetic vibrations in another part. Dreams are especially to be recommended because they are available to all men, and because, unlike other means of divination, they are private and cannot be laid under a legal ban. They are obscure, but no more so than oracles. . . .

IV

The hope that originally inspired this essay, that a search through ancient and medieval writings, particularly medieval, might turn up some valuable new insights into the nature of the dream, has been largely disappointed. A fairly patient consultation of the volumes in the Migne collection yielded little of a speculative nature beyond the works by Synesius and Nicephoras Gregoras. There is, however, this one interesting general conclusion to be drawn, historically: that modern dream theory, as represented particularly in Freud, is in most respects closer to Aristotle and Plato than it is to the later writers examined here. Especially remote from modern speculations is the atomism of Lucretius (and the collateral demonism of Tertullian). One might find occasion for surprise in this fact, in view of the increasing dominance of science by the atomism of modern physics. Just about equally remote, however, is the standpoint of a writer like Synesius with his Neo-Platonic emphasis on the creativity of the soul.

Chapter II

EMPIRICAL AND STATISTICAL STUDIES

No. 4

WHAT PEOPLE DREAM ABOUT*

CALVIN S. HALL

Man's dreams have always interested and perplexed him. From ancient times and from every civilization and culture, we have evidence of man's concern about the meaning of dreams. They have been interpreted variously as divine messages, as the experiences of disembodied souls roaming heaven and earth during sleep, as visitations from the dead, as prophecies of the future, as the sleeping person's perceptions of external stimuli or bodily disturbances (what Thomas Hobbes called "the distemper of inward parts"), as fulfillments or attempted fulfillments of wishes (Freud), as attempts by the dreamer to discern his psychic development in order to plan for the future (Jung), as expressions of one's style of life (Adler), as attempted resolutions of conflicts (Stekel).

Probably all of these theories, however ancient their origin and however nebulous their validity, have their votaries today. Dream books based on the theory that dreams foretell the future are undoubtedly as widely consulted today as they were during the Renaissance, when the dream book compiled by the second-century soothsayer Artemidorus was republished in many languages and editions, and was plagiarized and elaborated by numerous opportunists, who in that day as in this knew a good thing when they saw it.

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*From the *Scientific American, 184:*60-63, 1951. Reprinted by permission of the author and the publisher.

Even in modern times speculations about dreams have been long on theory and short on observation. What do people dream about? What is the content and character of their dreams? As far as I know, no one has made an extensive and systematic study of these questions. To be sure, psychoanalysts have given much careful analysis to the dreams of deranged and disturbed persons, but even for this unrepresentative segment of mankind there are no large-scale surveys of the content of their dreams.

The writer has undertaken to make such a survey, for the purpose of obtaining some empirical facts as a foundation for theorizing. He has collected more than 10,000 dreams thus far, not from mental patients but from essentially normal people. They were asked to record their recollection of each dream on a printed form which included questions requesting certain specific information, such as the setting of the dream, the age and sex of the characters appearing in it, the dreamer's emotions and whether the dream was in color. Obviously we cannot know how faithfully the subjects' recollections mirrored their actual dreams, so strictly speaking we should call our project a study of what people *say* they dream about. This has ever been the case and probably always will be, for no one has discovered a means of transcribing a dream while it is being dreamed.

We classified the dream material so that it could be studied statistically. From the many possible methods of classification we chose, as a beginning, a simple breakdown into five fundamental categories: 1) the dream setting, 2) its cast of characters, 3) its plot, in terms of actions and interactions, 4) the dreamer's emotions, and 5) color.

What are the most common settings in people's dreams? An analysis of 1,000 dreams reported by a group of educated adults provided 1,328 different settings. These could be classified into 10 general categories. The most frequent scene was a part of a dwelling or other buildings; this accounted for 24 per cent of all dreams. The other settings, in order of frequency, were: a conveyance of some kind, most commonly an automobile, 13 per cent; an entire building, 11 per cent; a place of recreation, 10 per cent; a street or road, 9 per cent; a rural or other outdoor area, 9 per cent; a store or shop, 4 per cent; a classroom, 4 per cent; an office or factory, 1 per cent; miscellaneous (including restaurants, bars, battlefields, hospitals, churches, and so on), 14 per cent. In dreams occurring in part of a dwelling the most popular room is the living room, with the bedroom, kitchen, stairway and basement following in order.

The outstanding feature of these dream settings is their commonplaceness. The typical dream occurs in prosaic surroundings —a living room, an automobile, a street, a classroom, a grocery store, a field. The dreamer may not always recognize the details of the place, but usually it is a type of scene with which he is familiar; seldom does he dream of a bizarre or exotic environment. Yet dream settings apparently are not entirely representative of waking life, as far as frequency is concerned. Considering the amount of time that people spend in places of work, such as offices, factories and classrooms, these places appear with disproportionately low frequency in dreams. On the other hand, conveyances and recreational places occupy a larger share in dreams than they do in waking life experiences. In other words, in our dreams we tend to show an aversion toward work, study and commercial transactions and an affinity for recreation, riding and residences.

For a study of characters appearing in dreams, we divided our subjects into two groups according to age, since it seemed likely that older people might differ from younger ones in the persons they dreamed about. The younger group was aged 18 to 28, the older 30 to 80. Let us consider the younger group first. They furnished a total of 1,819 dreams. In 15 per cent of these the only character was the dreamer. In the remaining 85 per cent, in which two or more characters appeared, the average number was two persons besides the dreamer.

Who are these characters? Of the persons other than the dreamer, 43 per cent appeared to be strangers, 37 per cent were identified as friends or acquaintances of the dreamer, 19 per cent were family members, relatives or in-laws, 1 per cent were famous or prominent public figures. The relatively infrequent appearance of prominent persons in dreams supports other evidence possessed by the writer that dreams rarely concern themselves with current events. Among the members of the family, the character that appears most often is mother (34 per cent); then comes father (27 per cent), brother (14 per cent), and sister (12 per cent).

We also classified the characters in dreams by sex and age. It turns out that men dream about males twice as often as they do about females, whereas women dream almost equally about both sexes. In the dreams of both men and women 21 per cent of the characters are not identified as to sex.

The analysis showed, as is not surprising, that people dream most often about other people of their own age. In the sample of dreams from the subjects in the 18- to -28 age group, 42 per cent of the dream characters were the dreamers' peers in age, 20 per cent were older, 3 per cent were younger and 35 per cent were of unspecified age.

We found that in general there were no very pronounced differences between the characters in the dreams of the young and older groups. Older people dream more about family and relatives and less about friends and acquaintances, which is not very surprising, since the younger dreamers were for the most part unmarried. Older people also dream more about younger characters and less about older characters and peers than do younger dreamers. We may generalize our findings by saying that while children are dreaming about their parents, their parents are dreaming about them, and while husbands are dreaming about their wives, their wives are dreaming about them.

We come now to actions or behavior: What do people do in their dreams? We classified 2,668 actions in 1,000 dreams. By far the largest proportion (34 per cent) fall into the category of movement—walking, running, riding or some other gross change in bodily position. We found that, contrary to popular belief, falling or floating in dreams is not very common. After movement, the next most common activities were talking (11 per cent), sitting (7 per cent), watching (7 per cent), socializing (6 per cent), playing (5 per cent), manual work (4 per cent), thinking (4 per cent), striving (4 per cent), quarreling or fighting (3 per cent) and acquiring (3 per cent). From this it can be seen that passive or quiet activities occupy a large part of dreams, while manual activities are surprisingly infrequent. Such common waking occupations as typing, sewing, ironing and fixing things are not represented in these thousand dreams at all; cooking, cleaning house, making beds and washing dishes occur only once each. But strenuous recreational activities, such as swimming, diving, playing a game and dancing, are fairly frequent. In short, dreamers go places more than they do things; they play more than they work; their activities are more passive than active.

What of the relations between the dreamer and the other characters in his dreams? We classified the interactions in a sample of 1,320 dreams in various categories according to degree of friendliness or hostility. In general, hostile acts (by or against the dreamer) outnumbered friendly ones 448 to 188. In the hostile sphere the acts of aggression ranged from murder (2 per cent) and physical attack (28 per cent) to denunciation (27 per cent) and mere feelings of hostility (8 per cent). The friendly acts ranged from an unexpressed feeling of friendliness to the giving of an expensive gift.

The emotions felt by dreamers during their dreams were recorded in five classes: 1) apprehension, including fear, anxiety and perplexity; 2) anger, including frustration; 3) sadness; 4) happiness, and 5) excitement, including surprise. Apprehension predominated, accounting for 40 per cent of all dream emotions; anger, happiness and excitement were tied with 18 per cent each, and sadness was the least frequent, 6 per cent. Thus 64 per cent of all dream emotions were negative or unpleasant (apprehension, anger, sadness) and only 18 per cent (happiness) were positively pleasant.

Yet paradoxically in the judgment of the dreamers themselves the dreams as a whole were rated pleasant much more often than unpleasant. They found 41 per cent of the dreams pleasant, 25 per cent unpleasant, 11 per cent mixed and 23 per cent without feeling tone. Older dreamers reported more unpleasant dreams than younger ones, but the difference was not great.

A question that has puzzled many students of dreams is why some of them are seen wholly or partly in natural colors ("technicolor"). I am afraid I have little to contribute to the solution of this puzzle beyond a few figures and a few negative conclusions. In a survey of over 3,000 dreams 29 per cent were colored or had some color in them and the rest were completely colorless. Women report color in dreams more often (31 per cent) than do men (24 per cent). There is a slight tendency for people over 50 to have fewer colored dreams than those under that age. Many people never experience color in dreams; on the other hand, a few have all their dreams in color.

What is the psychological significance of technicolored dreams? We have compared the dreams of people who dream entirely in color with those of people who never dream in color and have found no difference in any aspect of their dreams. We have compared the colored with the colorless dreams of the same person without discovering any way in which they differed. Nor can we find any single specific symbolic meaning in a particular color. We are forced to conclude on the basis of our present evidence that color in dreams is merely an embellishment, signifying nothing in itself.

What do all these facts on the content of dreams mean? I shall present my general theory of dreams and show how some of the foregoing findings fit into this theory.

Dreaming is thinking that occurs during sleep. It is a peculiar form of thinking in which the conceptions or ideas are expressed not in the form of words or drawings, as in waking life, but in the form of images, usually visual images. In other words, the abstract and invisible ideas are converted into concrete and visible images. By an odd process which we do not understand, the sleeping person can see his own thoughts embodied in the form of pictures. When he communicates his dream to another person, he is communicating his thoughts, whether he knows it or not.

During sleep we think about our problems and predicaments, our fears and hopes. The dreamer thinks about himself: what kind of person he is and how well fitted he is to deal with his conflicts and anxieties. He thinks about other people who touch his life intimately. His conceptions are purely egocentric; there appears to be no place in dreams for impersonal, detached thoughts. Accordingly the interpretation of dreams—the translation of the dreamer's images into his ideas—gives us an inner view of him, as though we were inside looking out and seeing the world as he sees it. We see how he looks to himself, how others look to him, and how he conceives of life. This is the heart of the matter, and the reason why dreams are important data for the psychologist.

How a person sees himself is expressed in dreams by the parts the dreamer plays. He may play the part of a victim or an aggressor or both; he may conceive of himself as winning in spite of adverse circumstances, or losing because of these same adversities. He may assume the role of a saint or a sinner, a dependent person or an independent one, a miser or a philanthropist. As Emerson said, "A skillful man reads his dreams for his self-knowledge."

Although the characters in his dreams are many and varied, they probably all have one thing in common—they are all emotionally involved in the dreamer's life. If this is so, one may well ask, why do we dream so often about strangers? The answer is that they are not really strangers but personifications of our conceptions of people we know. A person who conceives of his father as stern and autocratic, for example, may in his dreams turn his father into an army officer or a policeman or a schoolteacher or some other symbol of strict discipline. Very likely he will also have other conceptions of his father, and for each conception he finds an appropriate older figure who personifies the particular father conception uppermost in his mind at the time of the dream. Many of these father figures will be strangers to the dreamer, although the qualities expressed will be familiar enough to him.

Similarly the dream setting may portray the ways in which the dreamer looks at the world. If he feels that the world is closing in on him, he dreams of cramped places; if the world appears bleak, the dream setting is bleak. Tumultuous and tempestuous scenery —raging seas, milling crowds, exploding bombs, thunderstorms— betokens an outlook of insecurity and choas. In one series of dreams studied by the writer there was a plethora of dirty, dank and dismal settings—a visible projection of the dreamer's conception of a world decaying.

Dreams are filled with the gratification or attempted gratification of impulses, particularly sexual and aggressive impulses.

They tell us how the dreamer regards these impulses. If he thinks of sex or aggression as wicked, the expression of these impulses in his dreams will be followed by some form of punishment or misfortune. If he conceives of sex as a mechanical matter, he may have a dream like that of one young man who reported a nocturnal emission dream in which a lady plumber turned on a faucet for the dreamer. We study dreams, therefore, not to discover the wish motivating the dream, as Freud did, but rather to determine how the dreamer conceives of his wishes.

Dreams also provide a vista of the dreamer's conceptions of his conflicts. The dramatic quality of a dream—its plot, tensions and resolutions— is derived from an underlying conflict in whose grip the dreamer feels himself to be. In a series of dreams from the same individual we can see his conflict running like Ariadne's thread through the labyrinth of his dreams. The conflict may hang on with surprising tenacity over a period of years. Apparently the conflicts that motivate dreams are basic ones which rarely become resolved. We suspect that these internal wars have their origins early in life and are not easily, if ever, brought to a satisfactory conclusion.

In our studies of many dream series, a few conflicts stand out as being shared by many people. One such inner tug-of-war is that between the progressive pull of maturity, growth and independence and the regressive pull of infantile security, passivity and dependence. This conflict is particularly acute during adolescence and the late teens and early twenties, but in a large proportion of people it persists through later ages and returns to prominence in old age.

Another ubiquitous inner conflict is that between conceptions of good and evil—the moral conflict. The opposing forces are those of impulse and conscience. The dreamer impulsively kills a dream character and is then punished for his crime. Or he is driven to express sexuality for which he suffers some misfortune.

A third conflict arises out of the tug between the opposing tendencies toward integration and disintegration. By integration is meant all of the life-maintaining and love encompassing aims of man; by disintegration, the forces of death, hate, fear and anxiety which produce disunity and dissolution. One pole affirms life and love, the other affirms death and hate. Anxiety dreams and nightmares express the conception of personal disintegration.

We study dreams in order to enlarge our understanding of man. They yield information that is not readily obtained from other sources. This information consists of man's most personal and intimate conceptions, conceptions of which not even the person himself is aware. It is important to know these conceptions, for they are the foundation of man's conduct. How we view ourselves and the world around us determines in large measure how we will behave.

No. 5

SEX DIFFERENCES IN DREAM CONTENTS*

Richard Wellington Husband

There have been two major criticisms of many psychoanalytic concepts: first, that they are founded entirely on abnormal cases; and second, that there have been no quantitative presentations of the frequencies of the mechanisms. Any list of ten dream characteristics may contain some which occur a dozen times more frequently than others, but we have had no indication of their relative proportions.

In this study we have atempted to study dream contents in men and women of normal personalities and of college age. Some of the major problems are: (1) The relative frequency of dreaming; (2) The transfer of sensory and emotional experiences into dreams; (3) the extent to which actual experiences are reinstated in dreams; (4) the proportion of dreams which deal with sex; (5) the nature of sex dreams: major and minor forms of sex experience, relations to actual experiences, perversions; (6) sex differences in all these points; (7) the operation of the censor in men and women, married and unmarried people, and in persons of greater and lesser degrees of inhibition.

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*Abridged from the *Journal of Abnormal and Social Psychology, 30*:513-521, 1936. Reprinted by permission of the author and the American Psychological Association, Inc.

II. METHOD

The study was conducted by the interview method. The writer interviewed the men and Miss Margaret Collidge the women. In this way we tried to avoid embarrassment on the part of subjects in talking over rather intimate details with a person of the opposite sex. The procedure of using two interviewers may have introduced some minor discrepancies into the results, but we feel that we gained far more in confidence, and hence validity, than we lost in reliability. All subjects were known personally to the interviewers, so hesitation was at a minimum.

Exactly the same questions were used by both interviewers, and they were presented in the same order. The questions were asked verbally, and subjects were allowed to ramble on as long as they wished after getting the lead from the interviewer. Much valuable information turned up in this way. . . .

III. SUBJECTS

The subjects were twenty-five men and twenty-five women, the two interviewers securing them from among their own friends. Most of them were university upperclassmen, although some were graduate students and instructors. Very few of the group had studied enough psychology to understand possible interpretations of their own dreams. . . .

A few married persons were included in our group. Comparisons of dreams before and after marriage, and with opportunity for free sex expression should cast some light on certain of the psychoanalysts' contentions.

IV. RESULTS

The entire results will be presented first in statistical form, with discussion and interpretation in the next section. The totals will not always be twenty-five for each group, as some subjects often gave two answers and others may not have been able to give any for that particular question. Some of the differences may have been partially due to the method of questioning on the part of the two interviewers (for example question 6), but even these are probably largely valid, as the interviewers discussed the questions together and agreed on the procedure. At any rate, we feel that any loss in this direction is more than made up by gains in validity in other ways.

A. *General Questions*

	Men	*Women*
1. *How often do you dream?*		
More than once a week	14	14
About once a week	6	4
Less than once a week	5	7
2. *Are the majority of your dreams pleasant, unpleasant, or indifferent?*		
Pleasant	12	5
Indifferent	16	5
Unpleasant	4	5
3. *Are the most vivid dreams accompanied by fear, depression, or pleasure?*		
Fear	6	18
Depression	0	3
Pleasure	13	5
4. *Do dreams affect your mood after you awake?*		
Yes	5	6
No	20	19
5. *Do you dream directly or indirectly of your personal worries?*		
Directly	10	13
Indirectly	2	10
Not at all	11	4
6. *Name the character of any fear dreams: pursuit, falling, etc.*		
Pursuit		23
Falling	8	20
Smothering	2	7
Drowning		6
Murder		11
Torture		7
Death or illness	2	15
Burglars		16
Spirits		3
Fighting (giant)	2	0
7. *Do you dream of what you are thinking before you go to sleep?*		
Often	5	9
Occasionally	9	9
Never	11	7
8. *Do you dream more, less, or with no relation to physical or mental stress?*		
Mental (as studying)	12	17
Emotional	3	6
Physical	4	1
More when calm, or no relation	10	5

	Men	Women
9. *External stimuli affecting dreams: temperature, illness, bodily needs, etc.*		
Temperature	4	15
Hunger and thirst	1	10
Sickness (fever included)	2	12
Needs	4	14
Position	1	9
Clothing	1	5
Noise	3	18
Outside cause, uncertain	5	0
10. *Do you dream of past, present (or recent), or future events?*		
Past	12	18
Present or recent	3	3
Future	13	7
11. *Do you have recurrent dreams?*		
Yes	13	14
No	12	9
12. *Do you ever realize you are only dreaming?*		
Yes	4	16
No	18	9
Wake purposely to rid of bad dream	1	7
13. *Can you resume a pleasant dream after awakening?*		
Yes	4	14
No	21	11
14. *Do you have color in your dreams?*		
Color	5	15
No color	20	9
15. *Are you usually the chief actor, or merely a spectator, in your dreams?*		
Actor	21	22
Spectator, or passive	4	4
B. *Sex Questions*		
16. *How often do you have dreams connected with sex?*		
More than once a week	8	6
More than once a month	8	5
Few in year	8	12
Few in life	0	2
17. *Are these connected with minor forms (kissing, etc.) or with major forms of expression (sex relations)?*		
Major	13	16
Minor	11	17
Mostly major	8	5
Mostly Minor (varies)	5	19

	Men	Women
18. *Do you wake excited?*		
Yes	3	11
No	22	14
19. *Do you dream of people you know well, slightly, or not at all?*		
Good friend	12	21
Casual acquaintance	13	5
Stranger	8	6
Disliked individual	1	1
20. *Do dreams have any relation to a love affair?*		
At the outset	1	2
When at height		16
When it is going badly		8
After it has broken up		8
When there is no affair at the time		5
No relation	24	
21. *Do sex dreams tend to come when you are missing one particular person?*		
Yes	3	21
No	16	2
22. *Do these dreams ever resemble actual experiences?*		
Like	4	4
Similar in some respects	4	5
Not at all	16	16
23. *Relation to experience of preceding day.*		
Tend to occur after excitement	6	6
When there is lack of sexual excitement	1	22
No relation detectable	18	
24. *Unnatural sex expressions.*		
Rape	0	8
Homosexuality	4	2
Exhibitionism (clothes falling off, etc.)	2	6
Incest	5	2
Miscellaneous: bestiality, etc.	3	0

V. DISCUSSION

(1) An initial general observation is that women's dreams tend to be more emotional and vivid than those of the men. (Questions 2, 5, 6, 12, 14.)

(2) Women's dreams seem to contain a higher percentage of unpleasant contents than those of men. (Questions 3, 5, 6.) They have many more dreams of burglars, fear, falling, pursuit, etc. Some of these may be indirect wish fulfillment, however. The physiological nature of men's sex dreams may account for the predominance of pleasure in their dreams, although the inter-

views suggested that the neutral or non-sexual dreams in the women contained more fear-inspiring elements.

(3) Men transfer worries of daily life less into dreams than do the women, although there are no wide differences. (Questions 5, 8, 10.)

(4) Both men and women are predominantly active in their dreams, rather than passive. Very few said that they were like spectators at a parade, watching things happen around them without participating, but rather that they were in the midst of the action.

(5) Women tend much more to have color in their dreams, which is another point showing their vividness and imaginative nature.

(6) An observation which should be made before we undertake a more detailed discussion of the differences in the sex nature of dreams is that the physiological nature of men's dreams makes interpretation of comparisons rather difficult. Because the dream seems to be caused by and end in an emission, the origin is often physiological rather than emotional or mental.

(7) Men have a greater frequency of definitely sexual dreams, at least in the manifest content, than do the women subjects.

(8) As to the type of sex dream, those of the men somewhat more frequently center about sexual intercourse, but the differences between the sexes are only slight on this point. Again we cannot compare with perfect validity. A number of men volunteered the information that the dream was leading up to sexual intercourse, but that the orgasm occured before the dream had actually carried them to definite relations. If the dreams did not have a physiological origin or were a little slower in developing, it might have been that even more men's dreams would have terminated in sex relations. (Question 17.)

(9) Few men wake excited from a sex dream, while about half the women do. The nature of men's sex dreams creates physiological and emotional satisfaction.

(10) A very striking difference is that women are much more prone to transfer the emotions from their waking life love affairs into their dreams. Questions 19, 20, and 21 show that the women dream much more of the person whom they happen to

prefer at that time, and that they are more likely to dream in relation to the love affair. They tend more to dream of the boy while the affair is at its peak, but many of the girls also dream of it when they first fall in love, when quarrels may occur, and when its ardor seems to be wearing off. The reader will understand that we are speaking of the typical college romances, which do not necessarily have serious intentions at any time. In spite of this, the girls do take them much more seriously than do the boys. Many of us realize that this is true of waking life as well as of dreams.

(11) Question 19 was of the greatest interest to us. It was included to study the operation of the censor. We wished especially to see if the crude sex dreams centered around an intimate acquaintance, particularly the individual one prefers at the time, or whether the censor would forbid one's dreaming about a person one respected very much.

The women had many more dreams about their "boy friends" than *vice versa*. The censor seemed to operate more in accordance with the hypothesis suggested above with the men than with the girls. One boy reported a dream in which he had sexual relations with a sorority sister of the girl with whom he kept steady company. The writer happened to know both girls, and it was interesting to note that the two girls were of almost exactly the same build and complexion; in fact, so much so that they frequently traded clothes. A psychoanalyst would have an obvious interpretation: the censor did not let him dream of his own girl, but substituted one who was similar in many ways. . . .

(12) Question 22 was used as an opening wedge into another more intimate question, as to whether any possible sexual experience made any difference in later dreams. It seemed as if it did not in more than a minority of cases. Some men who were so innocent that they considered kissing a girl rather daring would dream of sex relations; others who were rather casual about sex relations would dream of nothing more than mild love play. The girls were more reticent about their intimate experiences, even to another girl. But several did state that they dreamed of nothing they had not done, although the dream was not at all a duplication of the exact situation. We do not suggest this as a consistent sex difference, however.

(13) Question 23 reveals again that wish fulfillment seems to be very strong in women's dreams, although again we run into the physiological factor in the men. Several men commented that they might have a sex dream after excitement, such as necking, but that this usually occurred late at night, and they were so tired on retiring that they slept soundly. In such a case they might tend to have a sex dream on the following night.

(14) The last question, dealing with unnatural forms of sex expression, shows little that could be analyzed either in terms of sex differences or in terms of the individual's personality. Rape, being a passive thing, naturally would be expected to come to women only. One may remember Freud's interpretation of a rape dream as enabling one to derive satisfaction without straining the conscience, as the woman can say that she is forced into the activity against her will. Exhibitionism also appears more frequently in women's dreams, but what this proves is uncertain. . . . The few incest cases usually involved the mother or father, although in one or two cases a sister or cousin was mentioned. . . .

(15) Several married men and women were in our group. They were all young, between twenty-three and twenty-seven. According to Freud, one might expect that a person who had opportunity for sexual gratification at any time would never have any dreams, if relations were satisfactory, since there would exist no repressions. This hypothesis appears partly true. The sex dreams, and perhaps dream of all types, of married men, were less frequent than those of the unmarried subjects. Sexual dreams occurred when the partner was away, ill, having menstrual cycle—all involving absence of relationships for a certain length of time. The wife and other persons appeared in the dreams of married men with about equal frequency. One would say that marriage did not dull a man's susceptibility to charms on the part of other women, nor did the censor place any tabu over the unconscious. Two of the three married women had had more sexual dreams since marriage, in contrast to their diminution in the men.

SUMMARY

(1) Sex differences in dream contents were studied in twenty-

five men and twenty-five women by an interview method.

(2) Women's dreams are much more vivid, more emotional, contain more elements of fear.

(3) Women tend to transfer their worries, love, and otherwise, into dreams much more than the men.

(4) Women dream about their "boy friends," while men do not so often dream about the girls they care for. This is accounted for on the basis of a differential operation of the censor. Other data on the censor is included in the discussion.

(5) Dreams in married people are fewer and involve less sex contents than those of single persons.

No. 6

NOCTURNAL SEX DREAMS*

Alfred C. Kinsey
Wardell B. Pomeroy
Clyde E. Martin
Paul H. Gebhard

The nocturnal sex dreams[1] of males have been the subject of extensive literary, pornographic, scientific, and religious discussion. The male, projecting his own experience, frequently assumes that females have similar dreams, and in erotic literature as well as in actual life he not infrequently expresses the hope that the female in whom he is interested may be dreaming of him at night. He may think it inevitable that anyone who is in love should dream of having overt sexual relations with her lover. But relatively few records of female dreams have been available to establish such a thesis. Even some of the best of the statistical studies of sexual behavior have failed to recognize the existence of nocturnal dreams in the female.

This is curious, for it has not proved difficult to secure data on these matters. Females who have had nocturnal sex dreams

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*Abridged from Alfred C. Kinsey, Wardell B. Pomeroy, Clyde E. Martin and Paul H. Gebhard: *Sexual Behavior in the Human Female,* 1953, Chapter 6. Reprinted by permission of the Institute for Sex Research, Inc., and W. B. Saunders Company, Philadelphia.

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[1] The term is generally used for all sex dreams in sleep, whether they occur in sleep at night or in sleep during the daytime.

seem to have no more difficulty than males in recalling them, and do not seem to be hesitant in admitting their experience. Whether or not they reach orgasm in these dreams is a matter about which few of them have any doubt. Because the male may find tangible evidence that he has ejaculated during sleep, his record may be somewhat more accurate than the female's; but vaginal secretions often bear similar testimony to the female's arousal and/or orgasm during sleep. As with the male, the female is often awakened by the muscular spasms or convulsions which follow her orgasms. Consequently the record seems as trustworthy as her memory can make it, and the actual incidences and frequencies of nocturnal orgasms in the female are probably not much higher than the present calculations show. The violence of the female's reactions in orgasm is frequently sufficient to awaken the sexual partner with whom she may be sleeping, and from some of these partners we have been able to obtain descriptions of her reactions in the dreams. There can be no question that a female's responses in sleep are typical of those which she makes when she is awake.

Masturbation and nocturnal sex dreams to the point of orgasm are the activities which provide the best measure of a female's intrinsic sexuality. All other types of sexual activity involve other persons—the partners in the sexual relations—and the frequencies and circumstances of such socio-sexual contacts often depend upon some compromise of the desires of the two partners. The frequencies of the female's marital coitus, for instance, are often much higher than she would desire, and even those females who are most responsive in their sexual relations might not choose to have coitus as often as their spouses want it. Since other persons have a minimum effect upon the incidences and frequencies of masturbation and nocturnal sex dreams, these latter outlets provide a better measure of the basic interests and sexual capacities of the female.

ORIGINS OF NOCTURNAL DREAMS

Whether sexual responses originate through the physical stimulation of some body surface, or through some psychologic stimulation by way of the cerebrum, they are mediated primarily through lower spinal centers and the autonomic nervous system.

Ultimately all parts of the nervous system become involved; and all parts of the body which are nervously controlled, especially those which are controlled by the autonomic nervous system, may be affected. Whenever there is sexual arousal the muscles of the body respond, as we have already noted, with a rhythmic, involuntary flow of movement which is one of the most characteristic aspects of sexual behavior, and at orgasm the body may be thrown into localized or more general spasms or convulsions. All of this seems to be as true of sexual responses and orgasm reached during sleep as it is of sexual responses and orgasm reached while one is awake.

Sexual responses in sleep may differ, however, from the responses which one makes when awake, in the fact that the learned controls and inhibitions which an individual has acquired in the course of his or her lifetime are less likely to operate in sleep. The content of the dream, the speed of the response, and the abandon of the activity in orgasm may be less obstructed by rational controls. The dreams, particularly in the male, may include socially taboo types of behavior, unconventional sexual techniques, contacts with children and with relatives (incestuous relations), exhibitionistic performances, group activity, fantastic and physically impossible techniques, and still other types of activity and partners which the individual certainly would not accept if he or she were awake. One of the most characteristic aspects of nocturnal sex dreams is the speed with which they carry the individual to orgasm, even though he or she may be quite slow in response while awake. An occasional female who finds it difficult to release her inhibitions and reach orgasm while awake may be able to reach it in sleep. There are some females (5 per cent), just as there are some males, who experience nocturnal dreams to orgasm before they have ever experienced orgasm from any other source while they are awake.

Among both females and males, nocturnal sex dreams, more than any other type of sexual outlet, appear to have their origins in what are primarily psychologic stimuli. It seems true that the direct physical stimulation of an individual's body by night clothing, the bed covers, the bed partner, and other pressures on the reposing body may sometimes provide physical stimulation which is sufficient to produce orgasm. The physiologic condition of an individual, including her hormonal constitution, may also have a great deal to do with determining the frequencies of her sex dreams; and her nutritional state, her general health, her fatigue, the temperature of the room, and still other physical and physiologic factors may contribute to the origin of the dreams. Certainly there is a portion of the daytime sexual activity of the male and more of the daytime activity of the female which depends primarily on physical stimulation, with a minimum accompaniment of any psychologic imagery or fantasy; but the physical and physiologic stimuli which seem conducive to the development of orgasm in sleep are rarely of the sort which would be sufficient to produce orgasm when one is awake. It is not impossible, and it is even quite probable that a lowered threshold of response during sleep makes it possible for a lesser physical stimulus to precipitate sexual responses at that time; but if physical stimuli alone were sufficient, one might expect them to produce nocturnal orgasms with considerable regularity and with much greater frequency than they usually occur, for the necessary physical and physiologic conditions would appear to be present quite regularly under normal sleeping conditions. It seems probable, therefore, that psychologic stimuli are involved to a greater extent than any of the physical and physiologic factors.

One of the most characteristic aspects of the orgasms which occur while an individual sleeps is the fact that they are almost always accompanied by dreams, even among females who are rarely or never given to sexual fantasy while they masturbate or engage in any other type of daytime sexual activity. The amount of nocturnal orgasm which occurs in the female without any consciously remembered dream is small. It involved something like one per cent of the females in the sample, and there is some reason to doubt whether the failure to recall dreams is sufficient evidence that they did not occur. We are inclined to agree with most psychologists and psychiatrists in believing that the dreams are not only necessary factors in the great majority of cases, but the prime precipitating factors of most nocturnal orgasms; but the physiology of the matter is still poorly understood, and further studies must be made before we can be certain of the extent to which the dreams may actually dominate the situation. The elucidation of this problem should further our understanding of the psychology of female sexuality in general.

At various points in the literature the opinion has been expressed that nocturnal dreams in the female are an expression of some neurotic disturbance, and that "normal," well adjusted females do not dream to the point of orgasm. The very fact that nocturnal sex dreams are not as universal in the female as they are in the male seems to have contributed to the opinion that they are pathologic. There is a tendency to consider anything in human behavior that is unusual, not well known, or not well understood, as neurotic, psychopathic, immature, perverse, or an expression of some other sort of psychologic disturbance. Curiously enough, the persons who contend that sex dreams represent neurotic disturbances in the female admit that it is impossible to believe that 80 per cent or more of the male population is to be considered neurotic simply because that percentage has nocturnal sex dreams which effect orgasm. . . .

INCIDENCE AND FREQUENCY

General Summary. At some time prior to the contribution of their histories, approximately two-thirds (about 65 per cent) of the females in the sample had dreams that were overtly sexual. For 20 per cent the dreams had proceeded to the point of orgasm, although these same individuals had sometimes had sex dreams without orgasm. Some 45 per cent reported having sex dreams which, however, had never reached orgasm. As with the male, the dreams often had a distressing way of stopping just short of the climax of the activity.

The accumulative incidence curves indicate that 37 per cent of the females in the sample had experienced dreams which had led to orgasm by the age of 45. This means that 63 per cent had not dreamed to orgasm by that age. The data on the present sample indicate, however, that nearly half of this 63 per cent (*i.e.,* 34 per cent of the total female sample) had had dreams without orgasm. Including females of all ages, it may, therefore, be estimated that a total of more than 70 per cent have sex dreams in the course of their lives, whether with or without orgasm. . . .

In the sample, the average (median) female who had had sex dreams to the point of orgasm was having such dreams at a rate of 3 or 4 times per year (an active median frequency of 0.06 to 0.08 per week). For perhaps 25 per cent, the experience had not occurred more than 1 to 6 times in their lives. In the total female sample, regular frequencies had occurred as follows:

8% with frequencies over 5 per year
3% with frequencies over 2 per month
1% with frequencies over 1 per week

The most extreme frequencies in any individual history were also low. There were only seven or eight histories among the nearly six thousand in which the dreams had occurred with average frequencies of more than 1.5 per week (three times in two weeks) during any five-year period. There were only one unmarried female over thirty years of age, two or three married females over forty years of age, and four previously married females over forty years of age who had had dreams which average more than once per week. For some other females, exceptional circumstances had produced several nocturnal dreams within a particular week, or even two or three times in a single night, but this was a very rare occurrence. Such high frequencies had almost never extended over any prolonged period of time.

Among women who had been deprived of some drug to which they had been addicted, we have five cases of a considerable increase in the frequencies of sex dreams to orgasm for a matter of a few days or a week or two, but such withdrawal symptoms are more marked among men and less frequently seen among women.

In most male groups there are individuals who have nocturnal emissions with frequencies which average as high as four to seven, and in some instances as high as fourteen per week over some period of years. The range of the variation in the frequencies of nocturnal dreams to orgasm is, therefore, much more limited among females. This is the only instance of a sexual outlet in which the range of individual variation is more limited among females than it is among males. . . . There are females who do not masturbate more than once or twice in a lifetime, and there are females who report masturbating to orgasm as frequently as a hundred times in an hour; such exceedingly high rates are never approached by the male. . . . It is only in the frequencies of nocturnal orgasms that the maximum frequencies for the females fall below the maximum frequencies for the males. In sexual responses which depend primarily upon physical stimulation, the extreme females surpass the males; but in such responses as dreaming to orgasm, which depend primarily upon psychologic stimuli, the males surpass the females.

There were some females, including as many as 2 per cent of those with masturbation in their histories, who were capable of reaching orgasm through fantasy alone, and this is beyond the capacity of almost any male. This would seem evidence of a high level of psychologic response in those particular females. But even these most responsive females do not have nocturnal orgasms with frequencies which approach those of the more responsive males or even of the average male. It is not immediately apparent why the psychologic responsiveness of a female when she is awake should not be correlated with a similar level of responsiveness when she is asleep.

The frequencies with which the average female in the sample had had noctural orgasms (the active median frequencies) were more or less constant for the single and married females of all age groups from adolescence to forty or fifty years of age; for the females of the grade school, high school, college and graduate school levels; for the females of the various religious, occupational, and rural-urban groups on which we have sufficient data; for the females who became adolescent at various ages; and for the females of the several generations represented in the sample. This is one of the significant aspects of the record. The detailed data, with especial emphasis on the few groups in which there is any significant variation from the general rule, are discussed below.

Relation to Age and Marital Status. Nocturnal sex dreams had occurred among fewer of the younger females (the active incidence) and among many more of the older females in the sample. It was about 2 per cent who had had dreams to orgasm between adolescence and 15 years of age, but the percentages increased in the older groups. Some 22 to 38 per cent of the females in the sample were having such dreams between the ages of forty and fifty. After that the incidences began to decline. We have only one instance of a female over seventy years of age who was having sex dreams to orgasm.

In contrast to the above, the male peak in nocturnal dreams is reached in the late tens or twenties, some twenty or thirty years before the female reaches the peak of her dream activity. . . .

While the number of females who were dreaming to orgasm increased with advancing age, there was no correlation between the age of the individual and the frequencies with which she was having experience. The average frequencies for those who were having dreams (the active median frequencies) remained around 3 to 4 times per year from adolescence to the oldest age groups on which we have good samples—at least to age sixty-five.

A somewhat lower proportion of the single females, a higher proportion of the married females, and a still higher proportion of the previously married females were having sex dreams to orgasm (the active incidences). The peak for the single females had come at age forty with 22 per cent involved; it had come for the married females at age fifty with 32 per cent involved. For the previously married females it had come at age fifty-five with 38 per cent involved.

Interesting to note, however, the average frequencies for the females who were having any nocturnal orgasms (the active median frequencies) remained quite constant, at something below 0.1 per week for all groups, including the single, married, and previously married females. Marital experience had evidently developed the imaginative capacities of some females who had not had sex dreams before marriage, and of a still larger number of those who had become widowed, separated, or divorced; but even the greatly increased experience which regular coitus had provided had not succeeded in increasing the frequencies of the nocturnal fantasies for the average (median) female.

Relation to Educational Level. In the available sample, there seems to have been no correlation between the educational background of the female and the accumulative or active incidence of her nocturnal sex dreams, or the frequency with which she had such dreams to the point of orgasm. . . .

The educational background of the male does seem to have a direct effect on the frequencies of his nocturnal emissions. The males who go furthest in their educational careers appear to have better developed imaginative capacities, and this seems to have an effect upon the development of their psychosexual responses. Unmarried males of the college level have nocturnal sex dreams with frequencies (median) which are between three and four times those of the males who never go beyond grade school; but females who have college and graduate school training do not have sex dreams any more frequently than those who have not gone beyond grade school or high school.

Relation to Parental Occupational Class. There seems to be little correlation between the social levels of the homes in which the girls in our sample were raised, and the incidences and frequencies with which they ultimately had nocturnal dreams to the point of orgasm.

Relation to Decade of Birth. In our sample, the number of teenage females of the recent generations who were dreaming to the point of orgasm (both the accumulative and active incidences) was about what it had been among those who were born forty years earlier. After the early twenties, however, a slightly higher percentage of the females of the younger generation were dreaming to orgasm. But the frequencies were not modified at all in the course of the forty years covered by the sample. If psychosexual development in the female were socially controlled, as it is ordinarily believed to be, we might have expected more change in the incidences and frequencies of nocturnal dreams over this period of years.

Within the last forty years the place of the female in our social organization has materially changed. Her position in the home has been considerably modified, her place in industry and in the business affairs of the nation has developed to an extent which was unimagined forty years ago, she has acquired some position in the political control of the nation, and become active in civic, state, and national affairs to an extent which her grandmother never anticipated. . . . In spite of this, the number of females who are ever stimulated by daytime fantasies or by sex dreams as they sleep, and the frequencies with which they have such dreams to the point of orgasm, remains just about what they were in their grandmothers' generation. The capacity to be aroused psychosexually evidently depends on something more innate than the culture. In the female, and not improbably in the male, there appears to be a limit beyond which psychosexual capacities cannot be developed within an individual's lifetime.

Relation to Age at Onset of Adolescence. There seems to have been no consistent correlation between the ages at which the females in the sample had turned adolescent, and their involvement in nocturnal dreams (the accumulative and active incidence figures), or the frequencies with which they had them (the active median and mean frequencies). . . .

Relation to Religious Background. The number of females in the sample who had ever experienced nocturnal dreams to the point of orgasm (the accumulative incidence), and the number who were having such experience within any five-year period (the active incidence), did seem to have been affected by the degree of their religious devotion. The differences were not dependent on their Protestant, Catholic, or Jewish backgrounds, but upon the degree of their devotion in their religion. In general, fewer of the females who were active or devout religiously had dreamed to the point of orgasm—perhaps because they had had the smallest amount of overt sexual experience about which they could dream.

On the other hand, the frequencies with which the females had had dreams after they had once started them did not seem to be affected by the religious background. . . . we found a similar situation in regard to the masturbatory frequencies of the females in the sample. It is difficult to understand why a religious background which has kept a female from dreaming of sex for some period of years does not continue to influence her after she has begun to have sex dreams.

PERCENTAGE OF TOTAL OUTLET

Nocturnal sex dreams carried to the point of orgasm appear to provide some physiologic outlet, albeit never more than a minor outlet, for about a third of the females.

Nocturnal dreams had accounted for approximately 2 to 3 per cent of the total number of orgasms experienced by the females in the total sample, including both the single and married females of most of the age groups. The figure was low, in part because there were three-quarters or more of the females in each age group who were not having any nocturnal orgasms, and in part because the frequencies were always low.

Nocturnal dreams had provided only 2 per cent of the total outlet of the younger single females in the sample and 4 per cent of the total outlet of the unmarried older females. . . .

Among younger married females, the orgasms obtained through nocturnal dreams had accounted for only 1 per cent of the total sexual outlet. However, the relative importance of the dreams had gradually increased as coital activities slowed up with advancing age, and the dreams had finally accounted for about 3 per cent of the outlet of the married females in their late forties. . . .

In the histories of the females who had been previously married, and who in consequence had had their chief source of outlet, marital coitus, more or less suddenly withdrawn, orgasms derived from nocturnal dreams had accounted for a more significant part of the total picture. Among the younger females in the sample who had been previously married, and who were now widowed, separated, or divorced, the dreams had accounted for 4 or 5 per cent of the total number of orgasms. Among the older females who had been previously married, the dreams had accounted for as much as 14 per cent of the total outlet. . . .

CORRELATION WITH OTHER SEXUAL OUTLETS

There is a longstanding and widespread opinion that nocturnal orgasms provide a "natural" outlet for persons who abstain from other types of sexual activity. . . . The belief that nocturnal dreams are compensatory carries the promise that undue physiologic tensions will be relieved if an individual remains abstinent.

Because of the importance of this concept of a compensatory function served by nocturnal orgasms, we have gone to some pains to analyze the data on our total sample of 7789 females. From these analyses the following generalizations may be drawn:

1. Out of our total sample of 7789 females, including both

Negro and white and both prison and non-prison cases, there are 1761 females who had dreamed at some time in their lives to the point of orgasm. However, only 251 of these cases, which is 14 per cent of all of those who had ever had nocturnal orgasms, seem to show a compensatory relationship between the dreams and the other outlets.

2. Such compensatory relationships seem to occur most frequently when other sexual outlets are drastically reduced or eliminated. When the female has not previously had nocturnal dreams, she may have them after the reduction of the other outlets.

3. Nocturnal orgasms seemed to occur, or increased in frequency, when socio-sexual outlets (as opposed to solitary outlets) were reduced or proved inadequate. The specific cases include instances of dreams which began only when petting, coitus, or homosexual outlets were eliminated or materially reduced in frequency.

4. In nearly every instance the compensatory nature of the nocturnal dreams seemed quite inadequate. The increase in the frequencies of the nocturnal orgasms is usually not more than a few per year, although the outlets for which they were supposed to be compensating may have averaged several times per week.

5. In contrast to this group of cases in which the nocturnal experience seems to serve a compensatory function, there are some 117 cases (7 per cent of the 1761 females who had ever experienced nocturnal orgasms) in which the nocturnal orgasms seemed to correlate positively with the occurrence of other sexual outlets. Nocturnal dreams seem to have occurred only when these individuals were most often involved in other types of sexual activity, or the dreams increased under such conditions. Instances of this are to be seen in the fact that the married females (in the same age groups) have higher rates of dreams than the single females.

6. For 183 females (10 per cent of the 1761 females who had ever experienced nocturnal orgasms), the nocturnal orgasms started in the same year that one or more of the other types of sexual activity had begun.

	% of females
Nocturnal dreams began when masturbation began	33
Nocturnal dreams began when petting began	34
Nocturnal dreams began when coitus began	48
Nocturnal dreams began when homosexual contacts began	8
NUMBER OF CASES	183

7. In some instances nocturnal orgasms were superimposed on what would seem to have been quite adequate or even high rates of outlet. . . .

8. In a portion of the cases, there seems to be a positive correlation between high levels of erotic responsiveness and the frequencies of nocturnal dreams to orgasm. For the 74 females in the sample whose nocturnal dreams had averaged at least once a week for at least five consecutive years, the record shows the following:

	% with nocturnal orgasms
Erotic responsiveness	
Above average	58
Average	30
Below average	12
Orgasmic response in coitus	
100% of contacts	89
With multiple orgasm (1.5 to 10 times each)	39

That 89 per cent of those with the highest dream frequency had reached orgasm regularly in their coitus, strikingly contrasts with the fact that not more than 47 per cent in any group of married females had ever reached orgasm one hundred per cent of the time, even after twenty years of marriage. That 39 per cent of those who had most frequently dreamed, experienced multiple orgasm in coitus, similarly contrasts with the fact that only 14 per cent of the total sample had regularly experienced multiple orgasm.

9. There is some correlation between the occurrence of masturbation and nocturnal dreams. There is also some correlation between the occurrence of fantasies in masturbation and nocturnal

dreams. The data are as follows:

	% females with sex dreams	*% females without sex dreams*
Masturbation in history		
With fantasy in masturbation	35	19
Without fantasy in masturbation	18	13
Without masturbation in history	47	68
NUMBER OF CASES	3423	1859

10. There are some individuals whose histories seem to show both compensatory and positive relationships between their nocturnal dreams and their other sexual activities. . . .

11. For 79 per cent of the 1761 females who had had sex dreams, there do not seem to be any obvious correlations between the occurrence or absence of nocturnal dreams and the magnitude of the total outlet. . . . This means that a multiplicity of factors must, in the majority of instances, determine the occurrence or non-occurrence of such nocturnal dreams, and that no single factor or small group of factors may account for their occurrence or non-occurrence in a history. What the present data do seem to show may be summed up as follows:

RELATION BETWEEN NOCTURNAL DREAMS AND OTHER SEXUAL OUTLETS

	%
Inverse or compensatory relationship	14
Positive or parallel relationship	7
No marked relationship (among females with dream experience)	79
NUMBER OF CASES WITH NOCTURNAL DREAMS	1761

CONTENT OF NOCTURNAL DREAMS

About one per cent of the females in the sample reported nocturnal orgasms without dreams. Of the females who had had sex dreams, whether with or without orgasm, something between 85 and 90 per cent had had heterosexual dreams. This closely matched the extent of the overt heterosexual activity in the same histories. Between 30 and 39 per cent of the females had dreamed, at least on occasion, of actual coitus, while 17 to 38 per cent had dreamed on occasion of heterosexual petting which did not involve coitus.

The sexual partners in these dreams were usually obscure and unidentifiable—an epitomization of some general type of person; and even the actor in the dream was not always the dreamer, but a person who combined the capacities of an observer and a participant in the activity. More precise data are needed on this matter. Many of the heterosexual dreams had an indefinitely affectionate or generally social content which did not include overtly physical contacts. While such dreams may in actuality be sexual in significance, they are quite different from the overtly sexual dreams which males usually have.

Some 8 to 10 per cent of the females having dreams had had homosexual dreams. This again, was very close to the number who had had overt homosexual experience. There were dreams of pregnancies resulting from the homosexual relations.

About 1 per cent of the females had dreamed of sexual relations with animals of other species. About 1.5 per cent had dreamed of sadomasochistic situations. Various other types of sex dreams had occurred in still other cases.

Something between 1 and 3 per cent of the females had dreamed that they were pregnant or that they were giving birth to a child. It is notable that these were reported as "sex dreams." For nine out of every ten of the females who had had such dreams, the dreams had not led to orgasm. . . .

Sex dreams, whether they occur in the female or the male, are often a reflection of experience which the individual has actually had. On the other hand, some 13 per cent of the females in the sample (Negro and white) who had ever dreamed, had had sex dreams which went beyond their actual experience. The specific record is as follows: [See Table, Dream Content Without Overt Experience.]

The dreams which antedate experience may represent some desire to participate in an activity which has not yet been accepted in actual life, or which the female has not yet had the opportunity to engage in, or which she would always avoid in overt relationships. Freud and other psychoanalysts believe that the dream

DREAM CONTENT WITHOUT OVERT EXPERIENCE

	Without Orgasm	*With Orgasm*	*With Any Dream*
	%	%	%
Dreams of coitus (not rape)	36	10	46
Dreams of rape	4	2	6
Dreams of petting	6	1	7
Dreams of homosexual contacts	16	7	23
Dreams of animal contacts	2	4	6
Sado-masochistic dreams	2	1	3
Dreams of pregnancy and childbirth	13	2	15
Number of females whose dreams precede experience............ 622			

content is often a record of repressed desires. Not a few individuals derive considerable pleasure from vicariously participating, through these dreams, in activities which, for one reason or another, are unattainable in actual life.

On the other hand, some of these dreams represent activities, like rape, which the individual may not desire and of which she may actually be afraid. It seems reasonable to believe that some of these dreams are nightmares rather than anything which the females would welcome either in or out of sleep.

The great majority of the females in the sample had accepted their nocturnal sex dreams without any disturbance. A smaller percentage had worried about the moral significance of their sex dreams. However, fewer females than males ever worry over their dreams, probably because some males are disturbed by their seminal emissions. In most instances the females had taken their experience as pleasurable, and had attached little other importance to it.

No. 7

A REVIEW OF THE LITERATURE ON CHILDREN'S DREAMS*[1]

Manfred F. DeMartino

INTRODUCTION

The dream life of children appears to be one of the most fruitful sources for uncovering personality dynamics. Through dreams, children spontaneously express their hopes, fears, conflicts, wishes, needs, hostilities and frustrations. Lacking the sophistication and inhibitions of advanced maturity, children generally display their feelings vividly, simply and openly in dreams. Symbolism, distortion, and other disguise mechanisms occur far less frequently in children's dreams than in those of adults. Freud remarks, "The simplest dreams of all are, I suppose, to be expected in the case of children whose psychic activities are certainly less complicated than those of adults." Thus, from a study of children's dreams much valuable psychological information may be obtained . . . In the present paper an attempt is made to report primarily the findings of empirical and quantitative research on children's dreams. Theoretical studies are not included.

Some of the factors which seem to have a significant bearing on the nature, content and frequency of children's dreams are: general and immediate environmental conditions, the previous day's experience, physical health, intelligence, age, and personality structure. In the following paragraphs, these, as well as other topics, will be discussed in view of the quantitative and empirical data available. Before this is done, however, several of the difficulties inherent in research on children's dreams should be mentioned. Foremost is the fact that young children frequently confuse dream states with waking states and vice versa. It is essential, therefore, that children's dreams be recorded immediately after awakening. Then, too, the accuracy and completeness of children's

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dreams are hampered by such conditions as their limited descriptive vocabulary, and tendency to fill in gaps indiscriminately. Moreover, young children tend to omit reporting dream occurrences which are contrary to their own experiences. Consequently, reliable data on children's dreams are not easily ascertainable.

One investigator (Berrien) attempted to overcome these problems by studying children's dreams by means of overt observation. Throughout the night his subjects were observed while they slept. Careful records were kept of such behavior as talking, laughing, sudden kicking, sleep walking, moaning, grinding of teeth, and pantomine movements. In terms of these data, inferences were made concerning the frequency and nature of the children's dreams. . . .

Therefore, in light of the difficulties encountered in research on children's dreams, the findings presented in this review should be looked upon as denoting, for the most part, trends and tendencies rather than established facts.

DO INFANTS DREAM?

Much speculation has been raised in regard to the age at which infants begin dreaming. Because of the introspective nature of dreaming, and the lack of recognizable speech in infants, this question still has not been fully settled. A number of years ago Stern stated, "Dreaming, very possibly, begins as far back as the child's first year, for even the sleeping infant shows at times reactions such as screams, sudden sucking movements, etc., which lead us to infer a dream-concept, no matter of how indefinite a character." Von Hug-Hellmuth also believes that infants dream during the first year of life. This contention is based on inferential observation of sleeping infants—their movements, smiles and loud laughter. Erickson presents empirical evidence which suggests that dreams may occur in an eight-month-old infant. In the same report he relates an incident which indicates rather strongly dream activity by an infant of 23 months. Freud describes an event experienced by his youngest daughter which tends to denote that dreams can occur at the age of 19 months. He also presents evidence which definitely signifies that dreams can occur at the age of 22 months. Grotjahn's observations of a baby of two years and four months demonstrate clearly that dreaming takes place at this age. The accuracy of this study is enhanced by the presence of the child's verbal ability.

EFFECT OF ENVIRONMENTAL CONDITIONS

The child's dream life seems to be affected significantly by both his immediate and general environmental conditions. Foster and Anderson disclose that children who sleep in a bed alone experience fewer unpleasant dreams than those who share a bed with another child or with an adult. Furthermore, children who occupy a bedroom alone have fewer unpleasant dreams than those who share a room with another child. Socio-economic status also appears to have an effect on children's dreams. Children who come from poor environments (low economic status) dream more than those from superior environments. . . . From Kimmins, one learns that the nature of their dreams is also different. Poor children dream more about toys, presents, and eating than do children from financially superior environments. Then, too, during the Christmas season when young children in general have more dreams which they remember than at any other time during the year, the dreams of poor children, once again, far outnumber those of well-to-do children.

EFFECT OF THE PREVIOUS DAY'S EXPERIENCE

Kimmins points out that the events in the dreams of young children are often concerned with happenings of the previous day. Foster and Anderson, as well as Stern seem to be of a similar opinion. Freud states that, "Children's dreams leave us in no doubt that a wish unfulfilled during the day may instigate a dream." Moreover, difficulties which occur during the day are frequently overcome and removed in the child's dreams. Kimmins also informs us that the reading of an exciting book just before going to sleep may affect greatly the child's dreams. In such dreams, the child assumes almost always the role of the character in the book which most appeals to him.

PHYSICAL HEALTH

Just as the state of a child's physical health has an influence on his waking behavior, so it seems to affect his being while he is asleep. "The better the general state of the child's health, the less frequent are unpleasant dreams." (Foster and Anderson) Wheneven the child's bodily temperature is raised above normal, dreams become more frequent. Concomitant with this quantitative change, are qualitative changes. Dreams become more vivid, more neurotic in nature, and the death element appears more often. With the return to good health, dreams take on their previous trends. When suffering from influenza or illnesses causing high temperatures, children of the ages 12 to 15 seem particularly liable to nightmares.

ELEMENT OF INTELLIGENCE

The effect of intelligence on the frequency and nature of dreams has not as yet been fully determined. Kimmins feels that for the ages of five through seven, there is no connection between the amount of dreaming and the level of intelligence. Berrien concludes that intelligence has a positive influence on the frequency of dreams. (The relationship, however, is not very strong.) In regard to the relation between intelligence and dream productivity, Despert remarks: "While there seems to be no definite relation between the two factors, it can be said that the children who dreamed more actively were not found in the group of lower intellectual level." Jersild *et al.,* report that children with IQ's of 120 and above have fewer dreams than children with lower IQ's. They also note that children with IQ's of 120 and over experience unpleasant dreams twice as frequently as pleasant ones. Children with lower IQ's, on the other hand, report only a slightly higher percentage of unpleasant than pleasant dreams. These authors also find that children of high intelligence experience a somewhat greater number of dreams about supernatural creatures, falling, being in high places, being powerless, being unable to move, strange places and people. Children with IQ's below 100, however, experience more dreams relating to movies and stories, as well as tales about crime. Selling's study with delinquents, however, does not reveal any consistency between intelligence and dream content. Blanchard finds that dreams occur as frequently at one level of intelligence as at another.

AGE AND CONTENT OF DREAMS

In general, the nature and content of children's dreams change with age. As the child expands his world of awareness and takes on new and varied experiences, his dream life becomes increasingly complex. With increased emotional maturity, the child's dreams also become more mature in nature. From Despert, who analyzed the dreams of 39 children ranging in age from two to five, one learns that while parents are viewed in benevolent roles they "were readily identified with powerful, destructive animals which threatened the child with total destruction." Other people are usually placed in fearful roles. In most instances animals are portrayed as being unfriendly, destructive, and sadistic.

At the age of five, children usually confuse their waking states with their dream states. The child is generally the central figure in his dreams and almost invariably is an active participant. As his social development advances, however, his dreams become less self-centered and more socialized. Piaget says that during the ages of five and six the child believes the dream comes from outside and takes place within his room. The child thus dreams with his eyes, and the experience is very emotional. Young children (five through seven) dream much less about food than do older children. . . . In addition, during the ages of five through seven, children have many fear dreams. The "bogey-man" and wild animals are among the primary fear-producing elements. . . . According to Cason, nightmares are more common in normal children from the ages of eight to 17 than in those who are older. Nightmares about animals, being chased, helplessness, despair and sorrow occur frequently. Moreover, "Normal children have few NMs during the first hour of sleep, and a relatively large number after having been asleep 5 hours." . . . in general with normal children the side is the most common sleeping position when the nightmare begins. It is of importance to note that the unpleasant dreams reported by children are not governed primarily by actual fear experiences, but rather by their fear beliefs which have been acquired as a result of events told to them; the reading of books or the viewing of pictures. At about the ages of seven and eight, "the child supposes the source of the dream to be in the head, in thought, in the voice, etc., but the dream is in the room, in front of him. Dreaming is with the eyes; it is looking at a picture outside" (Piaget). Most significant, dreams now are viewed as being unreal. The child at seven also recognizes the dream as being something apart from his waking life. . . . both boys and girls seem to dream more about burglars at the age of seven than at any other age.

According to Piaget, when children are about nine and 10 years old, "the dream is the product of thought, it takes place inside the head (or in the eyes), and dreaming is by means of thought or else with the eyes, used internally." While overt conversations occur in children's dreams from time to time, they reach a maximum at 10 years of age. Dreams of a kinesthetic nature generally do not appear with any great frequency until the age of 10, and from then until age 14, they increase steadily.

Kimmins finds that girls seem to dream a great deal about religion during the ages of 12 and 13; and at 13 they have many kinesthetic dreams. At 13, children frequently dream of death. The factor of jealousy (in regard to members of the same sex) comes into play in girls' dreams at about 14, but boys' dreams at this age do not contain this element. During the ages of eight to 14, dreams involving sentiment between members of opposite sexes are rather rare. Such sentiment is more frequent in the dreams of girls than of boys. Beyond the age of 13 dreams of adolescents become increasingly varied and complex.

PERSONALITY STRUCTURE

The nature of a child's dreams is probably determined more by his basic personality structure than anything else. Berrien reports "That aggressiveness in dreams tends to occur more frequently in those children judged aggressive than in unaggressive children and *vice versa*." . . . neurotic children have more dreams of death than do healthy, normal children. Griffith finds that boys who experience both dreams of falling and of being attacked have a larger percentage of unpleasant early memories than those who experience only one, or neither of such dreams. Despert notes that although all of those in her study who dream frequently (with the exception of one) are among the anxious children, the converse is not true. Anxious children do not necessarily report dreaming to any degree of frequency. The elements of repression and inhibition are believed responsible for the lack of relationship. There is, however, a relationship between anxiety in young children and motor restlessness during night sleep. Then, too, children who are bed-wetters tend to be restless at night. It seems very likely that the more insecure and fearful the child is, the more frequently he will dream, and the more he will experience disturbing dreams. Whether such dreams will be remembered consciously and reported by the child, however, is questionable.

BLIND AND DEAF CHILDREN

Jastrow has discovered that children who become blind before the completion of their fifth year do not see in their dreams. When complete blindness occurs between five and seven, whether or not the individual will in the future be able to see in his dreams, depends on his degree of development. "If sight is lost after the seventh year, the sight-centre can, in spite of the loss, maintain its function, and the dreams of such an individual are hardly distinguishable from those of a seeing person." From Kimmins, one learns that many important differences exist in the dreams of blind children and deaf children when compared to each other and to those of ordinary children. While deaf children's dreams are complete with visual experiences, the dreams of children who have been blind from birth are not. In the main, up to the age of 12, blind children dream far less than deaf children. The dreams of deaf children are more varied and fuller than those of blind children. Compared with normal children, the percentage of clearly defined wish-fulfillment dreams in both deaf children and blind children is about the same. However, the wishes are of a different nature. In the dreams of blind children, concerts, parties, and domestic experiences play a prominent role. Deaf children frequently experience dreams in which they are able to hear clearly. Blind children, who in general have a greater fear of fire than any other type of child, dream frequently of fires.

Significant too is the discovery that, whereas blind children experience kinesthetic dreams much less frequently than do normal children, deaf children practically never have such dreams.

DELINQUENTS AND ORPHANS

Kimmins reports that the dreams of children (ages 10 to 16) in industrial and reformatory schools are vivid and frequent. In great part they are compensatory in nature and almost half of the dreams are clearly of a wish-fulfillment character. . . . Kinesthetic dreams are experienced far less frequently by these children than they are by "normal" children. The fear dreams of these children are of an unusual kind and are described vividly. In general, the dreams of institutionalized boys and girls are similar. Selling's study of juvenile delinquents discloses that 80 per cent of the boys' dreams are about home. . . . No relationship seems to exist between the type of crime committed and the kind of dream experienced. Gordon's study of the dreams of 80 orphans (67 girls, 13 boys) ranging in age from five to 13 reveals that 50 per cent of their dreams represent home or family, 16 per cent suggest fear, 9 per cent are about toys, candy, money, etc., and 7½ per cent are "religious." In general, the boys' dreams display more action than those of the girls. DeMartino points out that institutionalized mental defectives dream mostly about "home" and "going home."

GENERAL SEX DIFFERENCES

. . . Girls report a slightly greater number of dreams than do boys. They also report more dreams of "being chased or threatened." From five through seven, boys' dreams contain many more elements of fear of animals than do girls' dreams. From five through 12, dreams about accidents, falling and bodily injury are experienced more frequently by boys than girls. While the movies have rather little effect on the dreams of girls, they are an important influencing factor in boys' dreams, particularly at seven years of age. Compared with boys, girls of the ages of eight to 14 report their dreams in greater detail and give more adequate descriptions of the main dream characters. There does not appear to be any significant sex differences, however, in the number of pleasant vs. unpleasant dreams.

The following statements pertain primarily to children from the ages of eight to 14. . . . girls have considerably more clearly expressed wish-fulfillment dreams than do boys, and their wishes are different (Kimmins). They dream much more of presents, eating, traveling, entertainment, and visits to the country. Girls also carry on conversations while dreaming somewhat more frequently than do boys. Boys, on the other hand, experience six times as many dreams about bravery and adventure as do girls. They also have more fear dreams. Their dreams, as compared with those of girls, contain fear of robbers and burglars twice as often. During this age span (eight to 14), unlike the span of five through seven, the frequency of fear dreams of animals is almost the same in both sexes. In boys' dreams the larger animals such as lions, tigers and bulls are most prominent. However, in girls' dreams dogs, rats, and snakes play a leading role. In general, boys experience more kinesthetic dreams than do girls. They also experience far more dreams about sports activities.

SUMMARY AND CONCLUSIONS

An attempt has been made to report some of the major findings of quantitative and empirical research concerning the dreams of children. It is hoped that the information presented will further aid psychologists, psychiatrists, social workers, and sociologists in their understanding of the psychodynamics of human behavior. In view of this survey the following statements appear justified.

a. Dreams can occur at the age of one year.

b. A child's dreams are affected by both his immediate and general environmental conditions, as well as by his socio-economic status.

c. The content of children's dreams is often related to experiences of the previous day.

d. The child's dream life is influenced in part by the state of his physical health.

e. A relationship seems to exist between intelligence and the frequency and nature of children's dreams.

f. The factor of age has an effect upon the nature and content of children's dreams.

g. The nature of a child's dreams is, in rather large measure, determined by his personality structure.

h. Differences exist in the dreams of blind children and deaf children, when compared to each other, and to those of non-handicapped children.

i. Institutionalized children frequently dream about their home lives.

j. Some sex differences exist in children's dreams.

Chapter III

EXPERIMENTAL AND THEORETICAL STUDIES

No. 8

OBSERVATIONS CONCERNING TYPICAL ANXIETY DREAMS*

Irving Harris

INTRODUCTION

The so-called "typical" dreams have long been known both to the laity and to those who deal with emotionally disturbed people. The term itself was used first by Freud in his *Interpretation of Dreams* and was meant to include those dreams whose occurrence was common and whose manifest content was more or less constant or fixed. Such familiar dreams as one's teeth falling out, or failing an examination, or appearing nude in public, are thus designated as typical dreams. Freud listed and described these dreams and remarked on their possible significance. Possibly his implicit warning that the latent dream content is a more reliable guide to the meaning than is the manifest content has accounted for the fact that interest in and work on the typical dreams has greatly decreased.

The writer in this report wishes to open the question of whether a further study of these dreams—and particularly the typical anxiety dreams—may not be of some value in supplementing or substantiating our present knowledge of personality. An understanding of these dreams may have a more practical

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*Abridged from *Psychiatry, 11:*301-309, 1948. Reprinted by special permission of the author and the William Alanson White Psychiatric Foundation, Inc. Copyright is held by the Foundation.

value relative to certain problems encountered in the initial or diagnostic interview. In these interviews the access to the latent content of reported dreams is frequently blocked because of the scarcity of associations. In such cases the manifest content is the only dream data with which the examiner has to work. As Freud says, "In the interpretation of typical dreams, we as a rule fail to obtain those associations from the dreamer which, in other cases have led us to a comprehension of the dream. . . ." Thus a better understanding of the manifest dream content would seem to be of value. . . .

Attention will here be focussed on two typical anxiety dreams alluded to by Freud as (1) "dreams of falling," and (2) "dreams of the nocturnal burglar, . . . of being threatened with knives, daggers and lances. . . ." For reasons which will be discussed later, the writer will consider the dreams of falling as one type and the dreams of a threat from a dangerous external object (burglars, wild animals, knives and so on) as belonging to another type. Regarding the former, Freud has said, "They refer to movement games which have such attraction for the child. . . . We have not yet exhausted the infantile sources of dreams of falling." Of the latter type of dream he has remarked, "They are characteristic as a manifest dream content of persons suffering from anxiety, etc. . . . A special investigation of these dreams would be well worth while."

The writer's purpose here is two-fold: (1) to describe individual differences in the occurrence and the comparative unpleasantness of these two types of dreams, and (2) to propose, on the basis of certain clinical data, a preliminary and tentative hypothesis regarding the significance of these individual differences. Consequently it has seemed advisable to divide this paper into sections.

Section I

MATERIAL

These observations began in 1942 when the writer was engaged in induction psychiatry. Since that time he has had the opportunity to examine 3,000 selectees, 600 military psychiatric cases, 250 children at a child guidance clinic, and about 150 of these children's mothers. The 3,000 selectees, seen in 1942 and 1943, came from urban Cleveland and surrounding areas. Of the 600 patients, about 3 per cent of whom were psychotic, roughly 80 per cent had seen overseas service and half this number had been in combat. The ages of the selectees and patients ranged from 18 to 36, and about two-thirds of them were married. The children, about three-fourths of whom were boys, came mostly from urban Chicago, the rest from down-state Illinois. Their ages ranged from 3 to 17, with most of them in the 7 to 14 age group.

PROCEDURES AND RESULTS

In order to assess the emotional stability of the selectees, the writer had interrogated them along various lines, one of which related to the occurrence of anxiety dreams. In asking the first 1,000 selectees about these dreams, use was made of such questions as, "Do you have 'scary' dreams? What are they about?" and "What was the 'scariest' dream you ever had in your life?"

It was found that of the 560 men spontaneously relating the content of their most disturbing anxiety dream, about 90 per cent described a dream in which the dreamer himself was in some danger. These dreams seemed to be reducible to two main and familiar types:

1. Dreams of falling from heights (falling from cliffs, buildings, bridges and so on).
2. Dreams of being attacked, threatened, or chased by an animate or inanimate dangerous environmental object from which the dreamer had some difficulty in escaping (attacked by a lion, chased by a robber, caught in a burning house and so on).

While the particulars of these two types of anxiety dreams varied from person to person, the common denominator or theme of the dream seemed to remain the same. In the former type (hereafter referred to as the "falling" dream) the danger seemed to be from the precipitate separation of the dreamer from a supporting object. In the latter type (hereafter referred to as the "attacked" dream) the danger seemed to be from the threat from without, which might injure, mutilate, or destroy the dreamer. Other manifest differences which seemed to justify the separation of these two types were: in the falling dream the dreamer is dangerously alone without anyone or anything to take hold of; in the attacked dream he is dangerously not alone and he is trying to get away from someone or something. In the former type, movement is marked and precipitate; in the latter type, movement is inhibited.

Because some selectees reported the falling and others the attacked dreams, the author became interested in the matter of individual differences. Consequently, of the last 2,000 selectees, the following direct questions were asked:

1. Have you ever in your life dreamed that you were falling?
2. Have you ever in your life dreamed that you were in some sort of danger such as someone or something trying to get at you, hurt you, or chase you, and you found it difficult to get away?
3. (If 1 and 2 were answered in the affirmative) Which dream seemed most 'scary' or unpleasant to you?

The results of this questioning revealed that these selectees differed as to whether they had had (or remembered) both, one or the other, or neither of these two types of dreams. If they had had both types, they also differed as to which type they considered the more 'scary' or unpleasant. Thus, of the 2,000 selectees, 14 per cent had had only the falling dream and 26 per cent having had both types of dreams, considered the falling dream more unpleasant. Combining these percentages, it may be said that *for 40 per cent of the selectees the falling dream was predominantly outstanding*. On the other hand, 21 per cent had had only the attacked dream and 18 per cent, having had both types of dreams, considered the attacked dream more unpleasant. *Thus, for 39 per cent of the selectees the attacked dream was predominantly outstanding*. (The remaining 21 per cent was composed of 19 per cent who denied having had either type of dream and 2 per cent who, having had both types of dream, considered them equally unpleasant.)

In general, similar findings regarding individual differences were noted later in examining the military patients, children, and mothers. The method of questioning, however, was somewhat different in order to decrease the effect of leading questions. These people were first asked to describe the content of their most disturbing dream—and in the case of military patients, interrogation was limited to dreams experienced prior to military service. Only after this non-leading question were specific questions asked regarding the occurrence and unpleasantness of the falling and attacked dream.

Time and space do not permit, in this particular report, a detailed statistical picture of the results, as regards the military patients, children, and mothers. However, in each of these three groups, between 85 per cent and 90 per cent of the spontaneously described dreams were falling or attacked dreams, the latter predominating about two or three to one. Of the remaining 10 per cent to 15 per cent of the spontaneously reported unpleasant dreams, a group of 8 to 13 per cent concerned someone emotionally close to the dreamer, rather than the dreamer himself, who was in danger, hurt, dying, or dead. The remaining 2 per cent consisted of dreams not readily classifiable, such as dreams of drowning, of being in a speeding car out of control, of being very small in a very large room, of being lost, of dying. The results of the specific as opposed to the nonspecific questioning revealed that in the military patients 38 per cent had the falling dream predominantly, and 47 per cent the attacked dream. In children these percentages were respectively 23 per cent and 58 per cent, and in the mothers 36 per cent and 50 per cent.

The foregoing observations appear to indicate (a) that for the great majority of people their most disturbing anxiety dreams have the manifest content of falling or being attacked from the environment, and (b) that there were individual differences as to the occurrence and the comparative unpleasantness of these two types of dreams. Two of several questions which naturally arose during the course of these observations were: Why should an individual's most disturbing anxiety dream commonly take one of these two particular forms? What is the significance of these already mentioned individual differences? The remainder of this report will be taken up with observations and discussions regarding these questions.

Section II

The tentative conclusions in this section were arrived at both on the basis of certain theoretical concepts and on the basis of clinical observation. . . .

To return to the questions regarding the data in the first section, the common occurrence of these two types of dreams would seem to argue against any psychopathological significance necessarily being attached to them. The fact that these dreams were experienced both by comparatively "normal" people, as were the selectees, and also by moderately disturbed people, as were the members of the latter groups—this fact would support a less ominous evaluation of their occurrence. If these dreams do not necessarily reflect psychopathology, an alternative possibility is that they reflect processes in the normal growth of the personality. More specifically, the early development of the child might give a clue as to the origin of these two types of dreams.

There are present in the early life of the child two psychic dangers, first described by Freud, which seem closely analogous to the two types of anxiety dreams. These dangers or threats, which originally emanate from the parents and are later incorporated in the superego and which tend to inhibit hostile aggressive or other forbidden activity, are: (1) loss of love or separation from the love or supporting object, and (2) castration or, in a more general sense, injury to or mutilation of the body or parts of the body.

To return now to the two types of anxiety dream, it seemed that a rather striking resemblance existed between them and the two dangers just described. On the one hand, the danger of separating from a love or supporting object resembled the danger in the falling dream; on the other hand, the danger of castration (or destruction) resembled the dangerous situation in the attacked dream.

. . . Analysts have long regarded the attacked dream as a type of castration dream. Falling dreams have not had as specific a meaning, although the elements of insecurity and loss of love have surely been noted. In women Freud felt that the falling dream referred to a moral fall.

It is naturally tempting at this point to set up, on the basis of these resemblances, a tentative hypothesis, namely, that the falling and attacked dreams may respectively signify, or reflect, the fear over loss of love or support and the fear of castration. This hypothesis might be helpful in explaining the observations described so far. Just as the falling and attacked dreams occur so commonly, are associated with great anxiety, and yet are subject to individual differences, so it is also with the psychic dangers of loss of love and castration. The developing infant or child is commonly exposed to these two parental threats and, as Anna Freud noted, the socialization of the child is accomplished largely through these means. The helplessness of the small child renders him most vulnerable to, and therefore most anxious about, these dangers. While most, if not all, children encounter both dangers in their maturation, one knows from psychoanalytic observation that individual differences as to the strength of these threats do exist. . . .

While the suggested hypothesis is attractive enough for the reasons just described, its validity would depend on its ability to explain certain behavior of persons who have had predominantly one or the other type of anxiety dream.

Certain clinical data, which will be presented shortly, appear to indicate that, in *one* area of behavior people with predominantly falling dreams tend to behave as if they predominantly feared loss of love and support; whereas those with predominantly attacked dreams tend to behave as though they predominantly feared castration. The data, consisting of three sets of observations in the military patients and the children, deal with the phenomenon of *overt hostile aggression directed at one rather than the other parent.*

Before proceeding with these observations, one might speculate, on the basis of certain theoretical concepts, as to the *direction* a child's overt hostility would take. *A priori,* one might expect that a child predominantly fearing loss of love and support would have great difficulty in expressing much hostility toward the mother. This is so because mothers are commonly and usually the source of love and support in the period of dependency, the first two years of life. Thus, if conscious hostility had to be directed toward one parent, it would be generally safer to direct it toward the father.

Now—if the suggested hypothesis has some validity, one could expect that overt hostility in children with predominantly *falling* dreams would be directed more towards *father* than towards mother.

On the other hand, and also a priori, it might be anticipated that a child predominantly fearing castration would have great difficulty in feeling or expressing conscious hostility toward the father. Theoretically, according to Freud, during the phallic period when the penis is prized so highly by the boy, it is *castration by the powerful father* which is most dangerous. If hostile aggression in children with such fears had to be directed toward one parent, it would be safer to direct it toward the mother. Again, if the suggested hypothesis has some validity, one would expect that overt hostility in children with predominantly attacked dreams would be directed more towards *mother* than towards father.

To turn now to the observations: They seem to bear out the foregoing predictions and thus lend additional support to the suggested hypothesis concerning the two types of dreams. In summary, it may be said that significant trends were seen in the retrospective accounts of the adult parents and in the actual behavior of the children—trends which indicated that *conscious hostile attitudes or actions* were more frequently directed towards the *father* in the case of persons with predominantly *falling* dreams and towards the *mother* in the case of persons with predominantly *attacked* dreams. The hostile actions took the form of arguments, temper outbursts, and actual physical assault directed towards one rather than the other parent.

The three sets of observations are here presented in more detail:

1. The first observations deal with the occurrence of overt conflict with a dominant father. All patients from homes intact until the patients were past 13 years had been asked, "Whom did you have trouble getting along with at home?" and, "Who was the real boss in your family, your father or your mother?" The spontaneous answers to the first question involved mostly fathers and siblings and rarely the mothers. The second question was answered usually to the effect that fathers were the bosses. In addition to these questions, the patient was asked about typical anxiety dreams and particularly the content of childhood nightmares.

In all, there were 248 patients who considered the father to be the dominant parent. However, the writer wishes to focus attention only on a small group of 36 patients who had had exclusively one or the other type of anxiety dream. Twenty of these patients had had the attacked dream in childhood and in later life, but *never* had a falling dream; the remaining 16 patients had had the falling dream from childhood on, but *never* had an attacked dream.

Here, then, were two groups exposed to similar frustrations in the form of a dominant, potentially punitive father, and yet who differed markedly as to type of anxiety dream experienced. Of interest are the findings regarding incidence of overt conflict with the dominant fathers: Incidence in the attacked dream groups was 5 per cent, in the falling dream groups, 46 per cent. These findings seem consistent with the hypothesis that the attacked dream reflects fear of the castrator (usually father). It is of interest that while only 8 out of 600 patients spontaneously mentioned difficulty in getting along with mother, all of the small number had predominantly attacked dreams.

2. The second set of observations deals with the selective direction of childhood temper outbursts toward a particular parent. There were 52 patients from intact homes who were not only quite overtly angry at the time of the examination and complained of chronic irritability, but also admitted having marked temper outbursts in childhood. These patients had had falling and/or attacked dreams from childhood on. These patients were asked, "With whom did you lose your temper, your father or your mother?" and, in almost all instances, loss of temper with one and/or the other parent was admitted.

There were two groups: (1) twenty patients for whom the falling dream was earliest and most unpleasant; (2) thirty-two patients for whom the attacked dream was such. The results regarding selective direction of temper outbursts indicated that the falling dream group tended to direct their outbursts toward the fathers, the attacked dream group toward the mothers. In the falling dream group: Of 15 patients who had lost their tempers with only one of the two parents, *all had done so with the father.* (The remaining 5 patients lost their temper with both parents.) In the attacked dream group, of the 17 patients who had directed their outbursts toward only one of the two parents, *all had done so toward the mother.* (The remaining 15 patients lost their temper with both parents.)

. . . 3. The final set of observations seems to bear out the finding on the military patients concerning direction of temper outbursts toward a particular parent. . . . the majority of referrals to a child guidance clinic is occasioned largely by overt misbehavior or acting out on the part of the children. A considerable proportion of this group consists of children who show marked hostile aggressive behavior. In the family setting the brunt of this behavior most frequently falls on the mothers. This aggression most often takes the form of overt defiance of the mother, and, in some cases, physical assault on her. It was noted that, although in the entire group of 250 children the ratio of children with predominantly attacked dreams to those with predominantly falling dreams was about 2½ to 1, in the group of 34 hostilely aggressive children this ratio was 25 to 1. All of this group showed marked defiance of the mother. In a small group of 8 such children who had physically assaulted the mother, all had had or were having predominantly attacked dreams.

DISCUSSION

. . . 1. The data in the first section stressed the common occurrence of the two types of dreams. Strictly speaking, this referred to the occurrence of the dream at least one time in the lifetime of the person, even though it be during childhood. That this happened to 80 per cent of the selectees seemed to speak against a psychopathological significance to the dream per se. However, as with any psychic mechanism or phenomenon, excesses would point toward disturbance or pathology. In this connection it should be mentioned that only 2.2 per cent of the selectees were presently experiencing these dreams at least once a year, and 0.6 per cent at least once a month.

2. In rgard to the data in the second section, it must be emphasized that the observations took into account only the phenomenon of overt conscious hostility. How much unconscious hostility was directed toward the other parent was not determinable by the method of examination used.

. . . not all persons with predominantly one or the other type of anxiety dream did display conscious hostility toward a particular parent. . . . it was mainly in those adults and children with chronic anger or irritability that this selective relationship was noted. There were, in fact, many patients who had had these dreams and yet were either placid or were the type that minimized or denied any conscious hostile feelings.

3. In relating the observations on hostility to the suggested hypothesis, attention had been sharply focussed on the effect of particular inhibitory forces on those individuals most susceptible to these forces. So many complexities enter into behavior such as overt hostile aggression that the sharp focus runs the risk of oversimplification. . . . Because of these complexities, the observations on direction of overt hostile aggression can only be said to be consistent with the hypothesis rather than to prove it.

Furthermore, an impression may have been gained that these persons may have been thought to be governed exclusively or typically by one rather than the other psychic threat. Certainly everyone has been exposed to the two threats from childhood on and does react at different times to each threat. However, the writer has been interested here in accounting for trends in the behavior of a collection of people. The complex behavior of one person is of course best understood by prolonged and deep observations.

4. The general methodology deserves some discussion. It is apparent that the observations have been derived from data based on conscious attitudes and memories. The limitations of this type of data are well known and need no further elaboration. Regarding the elicitation of the anxiety dream, the mode of questioning is admittedly somewhat crude. . . . It will be noted that the environmental threats were not differentiated as to whether or not they were animate nor as to the degree of immobility they produced in the dreamer.

5. Finally, as regards the proposed hypothesis—it attempts only to explain or integrate the data in the two sections by means of theoretical concepts already available. Whether or not new concepts have to be employed remains to be seen. Furthermore, the suggested *general* significance of these dreams should not be

considered as opposed to the specific significance of the dream to a particular person at a particular time and in a particular setting. For example, the falling dream may represent in different instances a moral fall or a fall from power, or anxiety over pleasureable kinesthetic sensation and so on.

The hypothesis should most likely be considered in its *most elemental* sense rather than in the most sophisticated sense, as would be implied by the term "loss of love" and "castration." The latter terms seem to signify later or derivative stages of very early reactions. Simply stated, it may be that there are two ways by which the anxiety of the infant is aroused—one, by depriving it of the external source of gratification and security (the prototype of the falling dream), and the other, by threatening *its own* power of gratification and survival (the prototype of the attacked dream).

. . . It is the writer's feeling that the elicitation of a person's predominant anxiety dream may be of use in the diagnostic or initial psychiatric interview. If the suggested hypothesis has some validity, then the predominance of the falling or attacked dream might give a clue as to which inhibitory psychic threat is chiefly operative in a particular person. . . .

There are many implications and questions which arise from the data and the suggested hypothesis. The introductory nature of this paper prevents the mention of more than two of these questions. First, what does the predominant psychic threat (possibly reflected in the predominant anxiety dream) tell us about the maturation of the personality or ego? Since the danger of loss of love or support is feared earlier than the danger of castration, does a predominant fear of the former danger signify a fixation at the dependent stage of development, and thus a more immature personality? If the answers to these questions are in the affirmative then it would appear that more than mere knowledge of the predominant inhibitory factor may be gained from elicitation of the predominant anxiety dream. Observations to be reported later do seem to indicate that there are differences in personality or ego maturation in persons who differ as to their predominant anxiety dreams.

The second question is, what is responsible for individual differences in the predominance of one or the other psychic threat, and one or the other predominant anxiety dream? How much is due to the constitutional or congenital endowment of the infant, and how much is due to maternal handling and attitudes? As regards the constitutional or congenital endowment, it will be recalled that Watson described two unlearned fears of the newly born infant: a fear or startle response could be elicited by suddenly dropping the infant, and also by exposing it to a sudden loud noise. The resemblance between suddenly dropping and the falling dream, and the resemblance between a sudden loud noise and the threat from without as seen in the attacked dream—these resemblances lead to the speculation that these dreams and psychic threats may be derived from reaction-patterns present at birth, if not even before birth.

. . . It is obvious that both intensive and extensive work is further needed to substantiate and refine what has been set forth here. . . .

SUMMARY

The first section of this paper dealt with the widespread occurrence of the falling and attacked dream, with the finding that one or the other of these dreams was judged to be the most unpleasant anxiety dream by an overwhelming majority of large groups of people, and with the finding that individual differences existed as to the occurrence and unpleasantness of these dreams. In order to account for the source of these two typical anxiety dreams, certain clinical and theoretical concepts pertaining to the early development of the child were recalled. It was suggested that the manifest content of the falling and attacked dream probably was derived from early threatening factors emanating from the parents.

A preliminary hypothesis was proposed which involved two psychic threats described by Freud. This hypothesis in effect is: The falling and attacked dreams may signify respectively fear over loss of love or support, and the fear of castration in its most general sense. The corollary would be: the predominant experiencing or unpleasantness of one or the other of these dreams may reflect respectively the predominance of one or the other of these psychic threats. Several clinical observations dealing with selective direction of overt hostility toward a particular parent were presented which seemed to give some degree of support to the validity of this hypothesis. The suggestion was made that the systematic and routine elicitation of the occurrence and comparative unpleasantness of the falling and attacked dreams may be of value in the diagnostic interview.

No. 9

THE SIGNIFICANCE OF THE DREAM OF BEING ATTACKED*

CALVIN S. HALL

Dreams may be classified much as Rorschach responses are into two classes, popular or typical dreams and original or unusual dreams. The two classes are to be distinguished either by their frequency of occurrence or by the proportion of dreamers who report having had the dream. Although there are as yet no general statistics for various types of dreams so that it can be said with certainty what kinds of dreams are typical, those who have had experience with dreams agree that certain kinds are fairly common. These would include dreams of falling, of taking an examination, of being chased and attacked, of appearing nude in public, of losing a tooth or having it extracted, of the death of a loved one, of making love, of being lost, of frustrated effort, of riding horseback, and of getting married.

Of these typical dreams Freud says that "we are accustomed to assume [they] must have the same meaning for every one—they presumably arise from the same sources in every case . . ." Freud analyzed a few of these typical dreams and concluded that the dream of appearing naked represents an infantile wish to exhibit oneself, the dream of the death of a beloved person embodies a childhood wish for that person's death, and the dream of a school examination is motivated by a wish to reassure oneself about the outcome of an anticipated task.

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*Abridged from the *Journal of Personality, 24:*168-180, 1955. Reprinted by permission of the author and the Duke University Press.

I: THE COMPARATIVE SIGNIFICANCE OF DREAMS OF FALLING AND OF BEING ATTACKED

Recently Harris has addressed his attention to two typical anxiety dreams, the dream of falling and the dream of being attacked. He hypothesizes that the dream of falling represents a fear of losing the mother's love and the dream of being attacked represents a fear of castration by the father. He then proposes to test these hypotheses in a very ingenious way. His testable proposition is that people who have dreams of falling predominantly should be able to express relatively more aggression toward the father than toward the mother in waking life because they are afraid of antagonizing the nurturant mother, whereas people who dream of being attacked predominantly should be able to express relatively more aggression toward the mother than toward the father because they are afraid of antagonizing the castrating father. Harris uses the term "predominantly" to include both (1) people who have either dreams of falling or dreams of being attacked exclusively and (2) people having both kinds of dreams who say that one type of dream is more unpleasant than the other type.

Although Harris offers some data in support of his proposition, the number of cases is so small as to render his findings suggestive rather than conclusive. Accordingly, the present writer has conducted a further study to test the validity of the Harris proposition. In the course of our investigation, data bearing on other matters were obtained, and these will also be presented.

In contrast to Harris's *Ss,* who were patients and army selectees interviewed at an induction station, our 517 *Ss* were college students enrolled in the first course in psychology. They did not know anything about the nature of the research, nor did the instructors who administered the questionnaires in their classes. The mimeographed questionnaire included the following four questions.

1. Have you ever in your life dreamed that you were falling?
2. Have you ever in your life dreamed that you were in some sort of danger from someone or something trying to get at you, hurt you, or chase you, and you found it difficult to get away?
3. Which kind of dream seemed more "scary" or unpleasant to you?

4. Which parent do you find it easier to argue and disagree with? The *Ss* did not sign their names, but they were asked to give their age and sex.

In formulating his proposition Harris does not state whether it applies equally to males and females. Nor does he make it clear whether his data were obtained from only one sex or from both sexes. Our data were analyzed separately for males and females.

FINDINGS

The Incidence of Dreams of Falling and of Being Attacked. In a sample of 2,000 selectees Harris found that 81 per cent had either one or both types of dreams. Our figures are even higher. Of 196 males answering Questions 1 and 2, 183, or 93 per cent, said that they had had one or both dreams, and 313 of the 321 females, or 98 per cent, replied in the same vein. The breakdown for the four possible combinations of answers to the first two questions appears in Table 1. Females who have only one kind of dream are more likely to have dreams of being attacked, whereas males who have only one kind are more likely to have dreams of falling. A test of the significance of this difference between the sexes was made by comparing the sexes for the proportion of those having falling dreams only to those having only one kind of dream. The proportion for males is .59 (16/27) and for females is .31 (16/52). The difference between these proportions is 2.55 times the standard error of the difference which is significant at the .01 level. Unless otherwise stated, McNemar's formulae 27 and 27a have been used for testing the significance of the difference between proportions.

This finding in itself would appear to tell against the hypothesis that dreams of being attacked represent fear of castration and dreams of falling represent fear of loss of love, for according to Freud, fear of loss of love is the decisive factor in the anxiety of females and fear of loss of the penis is the decisive factor in the anxiety of males. Consequently one would expect to find more dreams of falling in women and more dreams of being attacked in men. Such is not the case. The implication of this finding will be discussed in a later section of this article.

The Relative Unpleasantness of Dreams of Falling and of Being Attacked. Before the Harris proposition can be tested it is necessary to take into account the proportion of our population who consider one type of dream more unpleasant than the other and the proportion who can express aggression more easily toward one parent or the other irrespective of the type of dream they have predominantly.

Of 158 males answering Question 3, 72, or 45 per cent, consider dreams of falling more unpleasant and 86, or 55 per cent, consider dreams of being attacked more unpleasant (Table 1). This difference is significant at the .10 level and consequently is not a trustworthy difference. Males divide about equally on the question of which type of dream is "scarier."

TABLE 1

QUESTIONNAIRE RESULTS ON DREAMS OF FALLING AND OF BEING ATTACKED

	Males		*Females*	
	N	*Per Cent*	*N*	*Per Cent*
Questions 1 and 2 Having both dreams	156	80	261	81
Having neither dream	13	7	8	2
Falling dream only	16	8	16	5
Attack dream only	11	5	36	11
Total (number replying)	196	--	321	--
Question 3 Falling dream more unpleasant	72	45	78	29
Attack dream more unpleasant	86	55	192	71
Total (number replying)	158	--	270	--
Question 4 Argue more easily with mother	101	64	187	69
Argue more easily with father	57	36	83	31
Total (number replying)	158	--	270	--

A larger portion of females, on the other hand, consider dreams of being attacked to be more unpleasant than dreams of falling, 71 per cent versus 29 per cent (Table 1), a difference which would be likely to occur less than one time in a thousand by chance.

When males are compared with females on this question, the percentages are significantly different at less than the .001 level. Not only do more females have dreams of being attacked exclusively, but also more females consider these dreams to be "scarier" than dreams of falling.

This finding also runs counter to the hypothesis that dreams of falling signify fear of loss of love and dreams of being attacked mean fear of castration, for the reason stated in the preceding section.

The Overt Expression of Aggression Against Mother and Father. In both sexes there is a much larger proportion, 64 per cent for males and 69 per cent for females, who say they can argue and disagree more easily with the mother than with the father (Table 1).

We come now to a more direct test of the Harris proposition. Since there are differences in respect to the parent against whom aggression is more easily expressed and in respect to the relative predominance of dreams of falling and dreams of being attacked, these factors must be kept constant if the test is to be a critical one. Accordingly the Harris proposition has been recast as follows: The proportion of those who say they can argue with the father more easily than with the mother will be larger for those who have dreams of falling predominantly than for those who have dreams of being attacked predominantly. Table 2 may help to clarify the kind of comparison we have made.

TABLE 2

TESTING THE HARRIS PROPOSITION FOR MALES AND FEMALES

	Aggression to Father		*Aggression to Mother*	
	M	*F*	*M*	*F*
Dreams of falling	a (31)	(24)	b (41)	(54)
Dreams of being attacked	c (26)	(59)	d (60)	(133)

The Harris proposition says, in effect, that a/a+b will be greater than c/c+d. For 158 males, a/a+b is .43 (31/72) and c/c+d is .30 (26/86). The standard error of this difference is

.077 and the critical ratio is 1.69. Since it was predicted beforehand that a/a+b would be greater than c/c+d, a one-tailed test of significance is appropriate. A critical ratio of 1.69 is significant at the 5-per-cent point and the Harris proposition is verified for this sample of males.

For 270 females, a/a+b is .31 (24/78) and c/c+d is .31 (59/192). Since there is no difference, the Harris proposition is not verified for this sample of females.

Discussion. Although the Harris proposition was verified for the group of males used in this study, one should not place too much confidence in the strength of the verification for the following reasons.

(1) The absolute difference in proportions for the males although it is significant at the 5-per-cent point, is very small. Not many more males who have dreams of falling say they can express hostility more easily toward the father than males who have dreams of being attacked.

(2) Assuming that dreams of falling and of being attacked have the same meaning for males and females, a significant difference should have been obtained for females. Since no difference was obtained, one may conclude either (*a*) that the Harris proposition is invalid or (*b*) that the assumption that these typical anxiety dreams have the same significance for males and females is false.

(3) Dreams of being attacked are relatively more predominant in women than in men. This finding is just the opposite of that which would be expected if these dreams represent fear of castration.

Since the Harris proposition has been placed in jeopardy by our findings, we should like to examine further the hypothesis that dreams of being attacked mean fear of castration. The significance of dreams of falling will not be discussed in this article.

II: A CONTENT ANALYSIS OF DREAMS OF BEING ATTACKED

Fifty-three dreams of being attacked reported by males and 53 similar dreams reported by females were selected at random from a large group of dreams collected by the writer, primarily from students in his classes. The age range of the dreamers is 17 to 30, with a heavy concentration in the age range from 17 to 21.

The 106 dreams were analyzed for the following characteristics: (1) what the dreamer fears, (2) what the dreamer does, (3) what takes place prior to the attack, and (4) attributes of the attacker.

Results. What the dreamer fears was determined by identifying the intention of the attacker as clearly manifest in the dream. These intentions were classified under the following headings: (1) destruction of the dreamer's life, (2) physical assault upon the dreamer, (3) arresting the dreamer, (4) sexual attack, (5) robbing the dreamer, and (6) miscellaneous intentions. If the intention was not obvious from the context of the dream, it was considered to be indeterminate.

The following criteria were used for distinguishing between a fear of losing one's life and a fear of physical assault. If the attacker was obviously something that destroys life such as a lion or a tidal wave, or if the attacker was carrying a lethal weapon such as a gun or a knife, or if the dreamer expressed the feeling in his dream that his life was in danger, or if others had already been killed by the attacker, the intention was presumed to be one of destroying the dreamer. But if the intention of the attacker was one of punishing or hitting the dreamer, with no thought of killing him, it was classified as physical assault. In every instance, the intention of the attacker had to be made plainly evident in the dream itself before it was classified under one of the determinate headings. Inferences or interpretations

TABLE 3

WHAT THE DREAMER FEARS

	Males	*Females*	*Both*
I. Destruction of life	19	14	33
II. Physical assault	8	7	15
III. Being arrested	3	2	5
IV. Sexual attack	1	2	3
V. Being robbed	1	1	2
VI. Miscellaneous	2	3	5
VII. Indeterminate	19	24	43

regarding the *possible* intention of the attacker were rigorously excluded.

Table 3 shows that aside from the large class of dreams in which the specific fear cannot be determined, the most prevalent fear is loss of life or physical harm. Fears of being sexually assaulted, robbed, or arrested are quite infrequent. There are no striking differences between male and female dreamers.

The actions of the dreamers when they are attacked or threatened by attack divide into two classes. One class consists of actions in which the aim of the dreamer is to get away from the attacker by running, being saved, waking up, having the scene change, or ending the dream. These actions may all be regarded as having a passive aim, since the dreamer withdraws from the situation. The other class consists of resisting or fighting back behavior in which the aim may be regarded as being an active one. This class is subdivided into successful and unsuccessful counterattacks. Table 4 reveals that passive aims predominate and that there is no difference in this respect between male and female dreamers.

TABLE 4

WHAT THE DREAMER DOES

	Males	*Females*	*Both*
Actions with passive aims	47	49	96
Actions with active aims			
Dreamer successful	2	2	4
Dreamer unsuccessful	1	0	1
Aim not clear	3	2	5

In a majority of dreams of being attacked, the dreamer does not do anything to bring on the attack (Table 5). Even when something occurs prior to the attack, it does not always appear to justify the consequences. In a few cases, mostly in male dreams, the dreamer precipitates an attack by doing something sexual or aggressive.

In most cases the attacker is identified as another person or persons, although animal attackers are not uncommon (Table 6).

TABLE 5

ANTECEDENTS TO THE ATTACK

	Males	*Females*	*Both*
No antecedent	38	41	79
Neutral or ambiguous antecedent	2	9	11
Dreamer sexual or aggressive	12	1	13
Miscellaneous	1	2	3

TABLE 6

ATTRIBUTES OF THE ATTACKER

	Males	*Females*	*Both*
Human	37	37	74
Male	28	20	48
Female	0	1	1
Mixed sex	0	1	1
Sex not specified	9	15	24
One person	16	25	41
Two or more persons	21	12	33
Animal	11	11	22
Inanimate	5	5	10

When the sex of the attacker is stated, it is *always* a male in male dreams and with two exceptions it is always a male in female dreams. In nine male and nine female dreams the attacker is armed with a gun, knife, or other weapon.

When human attackers are classified as single or multiple, there are almost as many multiple attackers as single ones although female dreamers have more single attackers and male dreamers more multiple attackers. The difference, however, does not reach the 5-per-cent level of significance ($X^2=3.5$, $p=.10$), using Edwards' formula 24.

To summarize the findings, the typical dream of both men and women consists of an unprovoked physical attack by a man or group of men to which the dreamer responds by fleeing, waking up, or other actions of a passive nature.

Interpretation of Results. The findings of this investigation all seem to point in the same direction. The dream of being attacked represents the dreamer's conception of himself as a weak, passive, inferior and helpless person. The dream is *not* motivated by a fear of castration. Rather, it is the dream of a person who feels that he is castrated, i.e., weak and impotent, and because of this feels helpless to cope with dangerous threats.

Support for this interpretation of the dream of being attacked is derived from the following considerations. Reverting to the results of the questionnaire, it was found that women dream of being attacked more often than men do and they consider this type of dream more unpleasant than men do. In his discussion of the castration complex in women, Freud reminds us that "we can hardly speak of castration anxiety where castration has already taken place." Since women are made more anxious by this particular dream than men are, it is difficult in the light of Freud's statement to see how it can mean fear of castration. Moreover we have not been able to detect any major differences between the sexes in the form or content of the manifest dream of being attacked. It is unlikely, as Freud reminds us, that dreams which are the same in their manifest content would differ in their latent content. If the dream of being attacked has the same meaning for men and women, and if women do not ordinarily have castration anxiety, then this dream would not appear to be motivated by fear of castration.

Freud's theory of femininity is germane to our thesis. Femininity is not an exclusive possession of women, but is found also in varying degrees in men, for Freud believed that somatic and psychological bisexuality is the norm. One of the complex of traits making up femininity is a preference for passive aims, and when this preference manifests itself consciously in males it is energetically repressed *because it implies an acceptance of castration.* It is only repressed, however, when the passivity is felt toward other men, since a man can be passive toward a woman without becoming anxious. In virtually all of the dreams of our sample the dreamer, whether male or female, displays a passive aim. Moreover, the human attacker when he is identified as to sex is practically always a male. Both of these facts support the thesis that the dream of being attacked is an expression of femininity as conceived of by Freud.

Another feminine characteristic is a sense of inferiority which develops in a girl when she discovers that she is lacking a penis, or in a boy when he feels that he has been castrated. In nearly all of these dreams the dreamer's inferiority is made evident by his inability to fight back. Masochism is also a feminine trait according to Freud. Since a dream is an egocentric creation, to dream of being attacked appears to be masochistic, especially when the attack is unprovoked as it is in most of these dreams and when the dreamer does nothing to ward off the attack.

The dream of being attacked seems to embody all of the characteristics that Freud ascribes to femininity. It would appear, therefore, that when either a male or a female has this dream it represents an acknowledgment of castration, i.e., weakness and inferiority, and not a fear of it.

In this connection, an unpublished study by Polster on ego functioning in dreams contains some relevant data. Polster used as one measure of ego strength the way in which the dreamer reacted to aggression, whether with aggression or with nonaggression. It should be pointed out that Polster's aggressive dreams included verbal hostility as well as physical aggression, and that dreams of being attacked constitute only one type of aggressive dream in his study. Children, ages five to ten, met aggression with nonaggression 74 per cent of the time in their dreams, adolescents 47 per cent, adults 30 per cent, and adult patients at a mental hygiene clinic 55 per cent. Children and mental patients rarely met aggression with aggression, while for adolescents and adults the proportion of such reactions was fairly high. It is probably natural for children to conceive of themselves as being weak and helpless in the face of external dangers. When adults feel this way, as many of the patients seem to, it is an expression of weakness. The weak adult it seems identifies himself with the helpless child as well as with the characteristic traits of the female sex.

What is it then that the dreamer fears if not castration? Conceiving of himself as a weak person who is unable to cope with external and internal sources of danger, his fears are many and varied. He fears being hurt or killed. He fears sexual assault. Although only three dreams are explicitly rape dreams, a number of others fall into this category if one assumes that certain objects in dreams are phallic symbols, e.g., guns, knives, canes, horns, needles, etc. He feels threatened both by his impulses as represented by animals and natural forces and by his conscience as represented by the police and other authority figures.

Although it is maintained that dreams of being attacked express a conception of impotence, there are nevertheless a few dreams in which fear of castration seems to be manifest. In one dream a lion takes hold of the dreamer's genitals. In four dreams a part of the dreamer's body is attacked or removed. In one dream a man keeps the dreamer's hat and in another the dreamer removes his hat to escape identification by the police. In another dream everyone except the dreamer gives up his gun. These actual or symbolized castration dreams probably represent an intermediate stage between a conception of strength and one of weakness. Although not yet conceiving of himself as being completely impotent, his conception is moving in that direction.

Our findings have additional theoretical significance. The fact that the attacker is rarely identified as a female is consistent with two other aspects of Freudian theory. In the development of both sexes the first love object is the mother and the first hated and feared object is the father. In the dream of being attacked the earliest feared object, the male parent, is the prototype for the dream enemy. The mother rarely acquires an enemy status which is equivalent to that of the father, with the result that throughout life the father and, by generalization, other males are the chief enemies in the eyes of both sexes. Freud also says that the authority of the father is introjected into the ego and there forms the nucleus of the superego, which takes its severity from the father. If the attacker in a dream is a projection of the superego, as it so often seems to be, it would naturally be a male according to this view.

Although sex differences are not marked, there are two differences that appear to have some significance. Men, more often than women, are attacked following a sexual or aggressive misdeed, which suggests that men have stricter superegos than women do, as Freud intimated. In five male dreams the dreamer is saved by someone else. This never happens in female dreams. Women, apparently, feel hopeless about receiving help from others while some men, at least, can conceive of being succored. Does this mean that the female feels more rejected than the male? If so, is this feeling associated with the more complex development of the female, as formulated by Freud, especially as regards her disappointment with her first love object, the mother—a disappointment which is not experienced by males to the same degree?

How would our view regarding the interpretation of the dream of being attacked square with the hypothesis set forth by Harris? It will be recalled that Harris hypothesized that if dreams of being attacked mean fear of castration a person who has these dreams predominantly could express more aggression to the mother than to the father. By our interpretation of the dream of being attacked we would expect to find the same thing since the weak person should fear the stronger and more alien and threatening parent, which is usually the father.

SUMMARY

This study was divided into two parts. In part I a proposition formulated by Harris was experimentally tested. The Harris proposition states that people who have falling dreams predominantly are able to express relatively more aggression toward the father than toward the mother in waking life because they are afraid of antagonizing the nurturant mother, whereas people who dream of being attacked are able to express relatively more aggression toward the mother than toward the father in waking life because they are afraid of antagonizing the castrating father. This proposition is based upon the assumption that dreams of falling mean fear of loss of the mother's love and dreams of being attacked mean fear of castration by the father.

Harris's proposition was tested by means of a questionnaire which was answered by 517 college students. The proposition was verified at the 5-per-cent level of confidence for males but was not verified for females.

In the second part of the study, 106 dreams of being attacked were subjected to a content analysis. The following results were obtained.

1. The chief fear of the dreamer is that of physical assault.
2. The attacker is usually another person or persons and when identified as to sex is almost invariably a male.
3. The most common reaction of the dreamer is to run, escape, hide or wake up.
4. The attack on the dreamer is usually without provocation.
5. The similarities between the dreams of being attacked of males and females are more striking than are the differences. Men more often than women are attacked following a misdeed committed by the dreamer, and are saved by another person.

It was concluded that the dream of being attacked represents an expression of the feminine attitudes of weakness, passivity, inferiority, and masochism as formulated by Freud. The dreamer does not fear castration, as suggested by Harris, since he already feels castrated. Instead, his fears are those of an impotent person who is unable to cope with internal and external threats of danger.

No. 10

A COGNITIVE THEORY OF DREAMS*

CALVIN S. HALL

. . . Freud formulated a theory of the dream which has proved exceedingly useful to the clinical practitioner and to a lesser extent to the personality theorist for verifying propositions derived from dynamic theories of personality. Freud was very proud of his first original and independent achievement in psychological theorizing, so much so that he appears to have ben reluctant to alter it. . .

In a singularly mistitled lecture *Revision of the Theory of Dreams* published in 1933, Freud revises his original theory to the extent of adding the italicized word to the fundamental proposition, "the dream is an *attempted* wish-fulfillment." In

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this same essay, Freud observes that "the analysts behave as though they had nothing more to say about the dream, as though the whole subject of dream-theory was finished and done with." Freud must have had himself in mind as well as his colleagues when he made this observation for in his valedictory he abides by his original formulation, despite the fact that the psychoanalytic theory of the person had made great strides in the intervening 40 years. Probably the most noteworthy advances made by Freud in his later years were a revised theory of anxiety, a new theory of motivation, and the development of a far reaching ego theory. Of these three, ego theory has had the greatest impact upon current psychoanalytic theorizing.

What we should like to do in this paper is to bring dream theory within the context of ego psychology by defending the proposition that dreaming is a cognitive process. Before addressing ourselves to this theisis, let us define a dream. A dream is a succession of images, predominantly visual in quality, which are experienced during sleep. A dream commonly has one or more scenes, several characters in addition to the dreamer, and a sequence of actions and interactions usually involving the dreamer. It resembles a motion picture or dramatic production in which the dreamer is a participant-observer. Although a dream is an hallucination, the dreamer experiences it as he does any perceptual phenomenon. Scenes, people, objects, and actions are experienced as though they were impressing themselves on the senses from the external world. The world of dreams, it goes without saying, is a world of pure projection.

The principal thesis of this paper is that these images of a dream are the embodiment of thoughts. They are a medium by which a psychological process, cognition, is transformed into a form that can be perceived. Although images are the only means by which ideas find sensible expression in dreams, other media such as words, numbers, gestures, and pictures are employed in waking life for making one's thoughts known. When thought is made perceptible, it is said to be communicated. Unlike the communications of waking life, which may have an audience of millions, the audience of a dream consists of only one person, the dreamer himself. A dream is a highly private showing of the dreamer's thoughts.

In order to develop the thesis of this paper, it is necessary to say a few words about thinking. Thinking is a process of conceiving. The end-product of this process is a conception (idea). A conception is an item of knowledge, a formulation of experience which has meaning for a person. It is derived ultimately from experience but it is not dependent for its existence at any given moment upon the reception of sensory impressions from the external world or from one's body. In other words, conceiving is an autonomous process that requires no direct sensory data. It may be contrasted with perceiving, a process which is dependent upon direct stimulation of the senses. One *perceives* a wintry landscape when one looks out at a scene as it exists in the world and incorporates through the eyes a pattern of light waves which is the raw material for the formation of a perception.[1] One has a *conception* of winter when one thinks of it as being a time of cold weather, snow, short days, icy streets, and bare trees. One can conceive of winter at any time of the year, but one can only perceive winter during the winter. Although not a great deal is known about the process of conceiving, we are fairly well acquainted with its products, i.e., conceptions or ideas, since they are rendered perceptible in a variety of forms including dreams. An artist expresses his conceptions in visual terms, while writers and speakers use words to make their ideas public. Mathematicians employ numbers and symbols for conveying their thoughts, and musicians express themselves in patterns of tone, rhythm, intensity, and quality. A dancer embodies her ideas in physical movement, a sculptor in three dimensional forms, and an architect in buildings. The formulation and communication of ideas are the essence of all creative endeavors.

We return now to dreaming and dreams. If dreaming is defined as thinking that occurs during sleep, and if thinking consists essentially of generating ideas, then dreaming is also a process of conceiving and the resulting dream images may be viewed as the embodiment of conceptions. That which is invisible, namely a conception, becomes visible when it is transformed into a dream image. The images of a dream are pictures of conceptions. A dream is a work of art which requires of the dreamer no particular talent, special training, or technical competence. Dreaming is a creative enterprise in which all may and most do participate.

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[1] It is doubtful whether a pure perception ever takes place. Perceptions are probably always acted upon and changed by autochthonous processes within the person, the chief of which may be conceiving.

If dreaming consists of transforming conceptions into images, then dream interpretation reverses this process; images are translated into their referent ideas. How is this translation accomplished? It is accomplished by drawing inferences from material in the dream text, and by checking these inferences against other dreams of the person or against other information about the person. Although we cannot describe the methods of interpreting dreams within the limits of this paper, some general remarks regarding dream interpretation may be made here. To interpret a dream means, according to the theory presented in this paper, to discover the conceptions or conceptual systems of the dreamer, these conceptions may be inferred from a number of lines of evidence, some of which are as follows: (a) the actions and qualities of the dreamer in the dream, i.e., the role or roles played by the dreamer, (b) the kind of characters introduced in the dream, (c) the actions and qualities assigned to them, (d) the nature of the interactions between the dreamer and these characters, and between the characters themselves, (e) the setting or dream scene (f) transitions within the dream, and (g) the outcome of the dream. The final objective of dream interpretation is not to understand the dream but rather to understand the dreamer.

What kinds of conceptions are found in dreams? One is tempted to reply all kinds but this is not correct since many ideas seem to be excluded from dreams. Dreams are relatively silent regarding political and economic questions; they have little or nothing to say about current events in the world of affairs. I was collecting dreams daily from students during the last days of the war with Japan when the first atomic bomb was exploded, yet this catastrophe did not register in a single dream. Presidential elections, declarations of war, the diplomatic struggles of great powers, major athletic contests, local happenings that make the headlines, all are pretty largely ignored in dreams. A count of characters in a large sample of dreams reveals that the number of prominent people appearing in dreams is very small. Nor are intellectual, scientific, cultural and professional topics or the affairs of finance, business, and industry the subject matter of dreams.

What then is left? The whole world of the personal, the intimate, the emotional, and the conflictful remain. These are the ideas which register in dreams. For the sake of discussion, we shall present a classification of some common conceptions found in dreams.

(a) ***Conceptions of Self.*** A dream is a mirror that reflects the self-conceptions of the dreamer. Ideas of self are revealed by the repertoire of parts taken by the dreamer in a series of dreams. The repertoire may consist of a few roles, or it may be extensive and varied. In one dream series, for example, the dreamer is pictured as a great general, a rich and influential man, and an important steel manufacturer. In each case, however, he loses his power by being disabled in vigorous combat with a superior force. Here we see that a self-conception of strength and potency cannot be maintained. A typical dream of strength turning into weakness is the following one.

I was sitting knee deep in quarters in my room. People kept rushing into my room and stealing handfuls of money. I chased after them, grasping them violently and retrieving my money. But after a while so many people kept grabbing my money at once that I couldn't chase them all so I just sat there and cried.

This young man's conceptions of himself are disjunctive; he is both strong and weak, with weakness winning out over strength.

Perhaps no other medium gives us a more candid picture of what a person thinks about himself than do dreams. It was Ralph Waldo Emerson who wrote: "A skillful man reads his dreams for his self-knowledge."

(b) ***Conceptions of Other People.*** Dreams reveal what the dreamer thinks about his mother and father, his brothers and sisters, his spouse and children, and diverse other classes of people. These conceptions, like those of self, are embodied in the roles played by the various characters. If the dreamer conceives of his father as a stern, demanding, autocratic person, the father is assigned a part that is in keeping with this conception. If he thinks of his mother as a nurturant person, she will perform some service in the dream to depict her nurturance. Young men commonly dream about being attacked by other men, thereby displaying a conception of enmity that exists in males for other males. Less commonly young men are friendly with other men. Women also conceive of men as attackers but their dreams reveal many other conceptions. In a single dream series, multiple conceptions of the same person or class of persons are the rule rather than the exception, which suggests that the average person has a network of conceptions regarding his mother, father, siblings, and various other individuals and classes with whom he interacts during waking life. These ideational or cognitive networks are conceptual systems, and it is one of the aims of dream analysis to delineate these conceptual systems.

(c) ***Conceptions of the World.*** By the world is meant the totality of the environment, that which is not-self. In dreams as in poetic fancy the world may be invested with animistic qualities which reflect the dreamer's conceptions of the world. It may be viewed as benign, hostile, turbulent, sorrowful, lonely, or degraded depending upon the mood of the dreamer. These world-conceptions are often conveyed by the character of the dream setting. If the dreamer feels that the world presents a cold, bleak face, he may materialize this conception in the form of a cold climate and a bleak, rocky setting. A dreamer who feels that his world is one of turbulence and agitation, may dream of thunderstorms, raging seas, battles, milling crowds, and traffic jams. A feeling that the world is benign and peaceful can be scenically represented in dreams by serene natural settings.

(d) ***Conceptions of Impulses, Prohibitions, and Penalties.*** Since dreams are filled with impulse gratification, in particular those of sex and aggression, it is not surprising that Freud came to the conclusion that wish-fulfillment is the essence of dreams, and that the objective of dream analysis is the discovery of the wish which is fulfilled. It is hardly necessary, however, to consult dreams in order to learn that man seeks gratification of his urges. What dreams can tell us more profitably is how the dreamer conceives of his impulses, for it is these conceptions, not the impulses directly, that ordinarily elicit specific ways of behaving. Most people experience a sex drive, but they differ in respect to their conceptions of the sex drive. The sex impulse may be regarded variously as wicked, as unclean, as a mechanical pressure needing periodic release, as a natural force serving reproduction, as a way of expressing love and tenderness, or as a primitive and uncontrollable form of energy against which one wages a losing battle. Among our collection of nocturnal emission dreams, these and many other conceptions of this biological force appear. The following dream reveals a purely mechanical conception of sex.

I got out of bed and went into the bathroom and attempted to turn on the water faucet. I turned and turned but no water came out. I then decided to call a plumber. Soon afterwards the door opened and an individual dressed in coveralls approached me. Upon closer examination I discovered the plumber was a female. I scoffed at the idea of a lady plumber, but unruffled she went to the basin, turned the faucet, and water immediately flowed. An emission occurred.

Dreams also show the person's conceptions of the obstacles that stand in the way of the gratification of his impulses. These obstacles are often prohibitions emanating from his conscience and may be represented in dreams by such obstacles as walls, curbs, and locked doors, by acts of restraint such as putting on the brakes of a car, or by the appearance of authority figures who interrupt the dreamer's pleasure. If an impulse is gratified, the dreamer may express his conception of the punishment that will be visited upon him for his transgression. He may be punished directly by another person, or he may be the victim of misfortune. In any event, the kinds of obstacles and the kinds of penalities which appear in dreams are interpreted in order to throw light upon the nature of the conceptual system which is called the superego. This conceptual system which is assumed to be detached from the ego contains the moral ideology of the person.

(e) ***Conceptions of Problems and Conflicts.*** Perhaps the most important information provided by dreams is the way in which they illuminate the basic predicaments of a person as that person sees them. Dreams give one an inside view of the person's problems, a personal formulation that is not so likely to be as distorted or as superficial as are the reports made in waking life. Since it is the way in which a person conceives of his conflicts that determines his behavior, the inside view is a prerequisite for clear understanding of human conduct. . . . the delineation of a person's conflicts may be made by analyzing a dream series.

Of what value is it to know the conceptions of a person as expressed in his dreams? How does it help the psychologist to understand the person and thereby to predict and control his behavior? Of one thing we can be quite certain, namely that these conceptions are not dependable guides to objective reality; what one conceives to be true and what is actually true do not invariably coincide. A person may conceive of his father as a stern, autocratic unreasonable person, when, in fact, his father does not possess these characteristics in the eyes of impartial observers. Dreams should not be read for the purpose of constructing a picture of objective reality.[2]

Our thesis is that dreams are one dependable source of information regarding subjective reality, and that knowledge of subjective reality is useful precisely because it does have effects in the conduct of a person. If a boy sees his father as an autocratic authority, he will react toward his father as though he really is that way. In other words, these personal cognitions are the real antecedents of behavior.

Parenthetically, we would like to observe that psychology may have been hampered in its development because it has tended to ignore subjective cognitions in favor of objective stimulus variables. Stimulus conditions are varied and the effects in behavior are noted, often without taking into consideration that the person's conception of the stimulus may be the decisive factor. People may react differently to the same stimulus because they have different conceptions of the stimulus or they may react in the same way to different stimuli because they have similar conceptions. This is a truism whose truth is too often forgotten in psychological experiments, although there are indications that the pendulum is swinging back in the direction of cognition variables.

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[2] The expression "objective reality" is used in contrast to "subjective reality." By the former, we mean those conceptions of reality which can be publicly demonstrated and repeatedly verified. By the latter, we mean those conceptions of reality which reside in a person's mind irrespective of whether these conceptions can be demonstrated and verified. Both kinds of conceptions are "real" inasmuch as they both have "effects."

Although this is not the place to develop fully our theory of *conceptual systems,* it is not inappropriate to mention briefly our view that the conceptions of a person are organized into interconnected networks. One network may consist of the conceptions that a person has of his family, and this network in turn may be interconnected with a network of ideas about government, or religion, or education. A recent study has demonstrated in a convincing manner how ideas about minority groups are intimately related with ideas about family, religion, government, and economics. It is the task of psychology, as we see it, to explore these conceptual systems or personal ideologies, to show how they are interrelated, to learn how they are developed, to demonstrate how they control and regulate conduct, and to discover how they may be changed. In order to do all of these things, it is necessary to devise methods of finding out what a person's conceptions are. Attitude-opinion questionnaire methods have reached a high level of development and are employed on a large scale to determine people's beliefs about everything under the sun. The value of such methods, although great, is nonetheless limited by several factors inherent in the methods. The respondent may not answer a question either because he does not want to or because he does not know the answer, or he may answer it untruthfully either intentionally or unintentionally. Moreover, the wording of the question is an important variable. At best, questionnaires get at the conscious and verbalizable conceptions of a person.

If one assumes, as the writer does, that the contents of personal ideologies are pretty largely unconscious or preconscious, then methods have to be used which will reveal these unconscious conceptions. Projective methods, especially of the picture-story type, lend themselves to the exploration of conceptual systems, although they have not been employed to any great extent for this purpose. Picture-story tests do have one drawback, however, and that is that the person's conceptions may not be fully laid bare by the collection of pictures used. Since the material obtained will be a function of the kind of pictures shown to the person, it is possible that those conceptions which are of greatest significance for him may not be tapped. This limitation does not apply to dreams. The dreamer makes his own pictures of those conceptions that are of greatest importance to him currently. Over a period of time, his dreams will depict the essential features of his conceptual systems. Moreover, dreams tap the unconscious and bring to the surface those prototypic conceptions around which conceptual systems are formed. It is our view that prototypic conceptions have their origin in early life and that they are more likely to express themselves in dreams than through any other medium. For these reasons, we feel that dreams constitute the best material for studying the conceptual systems of a person and that such knowledge is absolutely essential if we are to understand why people behave as they do.

We shall conclude by demonstrating how the views presented in this paper may be utilized in analyzing a dream. The following dream was reported by a young man.

I was at the blackboard in a school room doing a trig problem but I was having trouble with it because I could not remember the valence of nitrogen. I was about to give up on it when a girl came up to me and asked if I would like to dance. The music was good but very erratic, being very fast one instant and very slow the next; however, we were always exactly in step. She was an excellent dancer. When the music stopped we were both in the school shower but we still had our clothes on. I wanted to take hers off and make love to her but I had never done anything like that before so we just laughed and splashed water.

Then I was outside the school. It was night and lights shone in all the windows silhouetting a wild orgy of a party. I felt very lonely. I wanted to go inside but something seemed to hold me back. I heard chimes ringing in the church.

In the opening scene, we see the dreamer hard at work on a mathematical problem with which he is having difficulty. His self-conception is that of an industrious student engaged in a purely intellectual task for which he does not have the requisite knowledge. A girl appears and invites him to dance; that is, he conceives of the girl as a temptress and of himself as her victim.

At her bidding, he leaves the hardships of intellectual activity for the pleasures of sensuality. Their sensuality stops short of complete fulfillment because he cannot conceive of himself as consummating the sexual act. The scene changes in line with a new conception. The dreamer now sees himself as a lonely outsider looking in on a wild orgy. He would like to go in, but he is held back by an unidentified force. The church bells, embodying as they do ideas of virtue and morality, suggest that the unknown force is his own conception of moral conduct.

This dream, then, reveals two opposing conceptual systems, one which contains the young man's conception of himself as a moral, industrious, and intellectual person, the other which contains his conception of himself as a sensual being. These disjunctive conceptions tend to inhibit one another. He cannot maintain a consistent conception of himself as being either moral or sensual. When he is doing the "right" thing, he is lured away by sexuality; when he is doing the "wrong" thing, he is pulled away by morality. A self-conception of inadequacy for either role is portrayed by his inability to solve the intellectual task or to fulfill his sexual wish. In this dream we see that it is not the sex drive per se that is of significance, but rather his conception of it as being forbidden to him.

Other dreams collected from this young man help to fill out the contents of his conceptual systems. In one dream, he does consummate the sex act, but only because the girl actively seduces him. This suggests that his conception of morality can be subordinated when he sees himself as the victim of external forces. Even in this dream, however, the dreamer feels ashamed because he is so easily excited. His personal ideology regarding women is an interesting yet not uncommon one. Women are of two types: aggressively sexual women who seduce men and pure women who are to be loved in a respectful manner but with whom sexual relations are forbidden prior to marriage.

We have spoken of the disjunctive nature of the dreamer's moral and immoral self-conceptions. In one dream he makes a partial fusion of these opposed views.

I was studying for a test with my girl. We were lying on the bed in her room reviewing our notes and asking each other questions about them. As each topic would come up, instead of discussing the text, I would demonstrate a different point in making love to her. Although each type of love making seemed different, it never got beyond the kissing stage.

Work and sex are integrated, although the sex impulse is kept within bounds. The girl in the dream is one of the "nice" girls in the dreamer's life toward whom he would not be likely to have unrestrained sexual feelings.

CONCLUDING STATEMENT

The argument presented in this paper consists of the following assertions:

1. Dreaming is a cognitive activity, and a dream is a pictorial representation of the dreamer's conceptions.
2. Dream interpretation consists of discovering the conceptions that lie behind the dream images.
3. Conceptions represented in dreams usually fall into one of the following classes: (a) self-conceptions, (b) conceptions of other people, (c) conceptions of the world, (d) conceptions of impulses, prohibitions, and penalties, and (e) conceptions of conflicts.
4. Conceptions are organized into conceptual systems, and these systems are the antecedents of behavior.
5. Dreams provide excellent material for the analysis of conceptual systems since they portray unconscious and prototypic conceptions.
6. The theory presented in this paper represents an extension of ego psychology to include dreaming as a function of the ego.

Chapter IV

PERSONALITY CORRELATES OF DREAMS

No. 11

AUTHORITARIAN ATTITUDES AND DREAMS*[1]

SAMUEL J. MEER

One of the central personality characteristics differentiating highly authoritarian from nonauthoritarian individuals as reported by previous investigators is the ability to tolerate emotional ambivalence toward parents and other powerful authorities. Authoritarian individuals were found to be unable to tolerate ambivalent feelings because as children they had been forced to submit to parental wishes and to arbitrarily imposed standards and values on pain of loss of love and material benefits. This submission resulted in a repression of intense hostile feelings toward parents and at the same time a stereotyped overidealization of them. Another outcome of this split between positive and negative attitudes toward parents was found to be a generalized tendency to think in terms of rigid dichotomies about people and events and to seek simple black-white solutions to problems. In the social sphere this dichotomizing tendency is seen in the categorization of people into ingroup and outgroup by highly authoritarian individuals, with uncritical acceptance of the ingroup and moral condemnation of the outgroup. Nonauthoritarian

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*Abridged from the *Journal of Abnormal and Social Psychology, 51:*74-78, 1955. Reprinted by permission of the author and the American Psychological Association, Inc.

[1] This paper is based on a doctoral dissertation submitted to the Department of Psychology, Western Reserve University . . . Grateful acknowledgement is due to Professor Calvin S. Hall for his guidance.

subjects were found to be able to admit their ambivalent feelings toward parents more openly and to have less need to repress negative feelings or to categorize people into sharp dichotomies in order to solve the problem of emotional ambivalance.

The cognitive derivative of emotional ambivalence, namely tolerance vs. intolerance of perceptual ambiguity, and its relationship to ethnocentrism have been discussed in the literature and have been subjected to experimental test. The purpose of this study was to attempt a verification through dreams of the difference in handling emotional ambivalence between highly authoritarian and nonauthoritarian individuals. The general proposition which was tested is that highly authoritarian persons need to categorize people into ingroup and outgroup in order to solve the problem of emotional ambivalence toward authorities, while nonauthoritarian individuals need not do so. The general design was to obtain two groups of subjects who differed significantly in their attitudes as measured by the *F* or authoritarianism scale, and to test hypotheses deduced from the theory of the authoritarian personality by a comparison of the subjects' dreams. We used dreams as the dependent variable to test this hypothesis because dreams are an important area of personality expression, and because dreams are independent of the kind of data used originally to test the theory of the authoritarian personality.

PROCEDURE

Subjects (*S*s) were drawn from male and female undergraduates in psychology classes at two universities. Dreams and *F* scales were obtained from 116 students. Those scoring highest and those scoring lowest on the scale were selected for use in this study. The high scoring or authoritarian group consisted of 38 *S*s, 17 males and 21 females. The low scoring or nonauthoritarian group was made up of 33 *S*s, 15 males and 18 females. There were no significant differences in age, education, and socioeconomic level between the two groups.

The *F* scales were administered by the instructors during a regular class session. The *S*s' dreams were obtained by two instructors, one at each university.[2] Early in the course, the students were asked to cooperate in a serious research project. They were requested to record their dreams as soon as possible after awakening on forms provided them by the instructors.

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[2] The writer wishes to thank Dr. Calvin S. Hall and Mr. Roland Cook for making their collections of dreams available to him.

A total of 685 dreams contributed by 71 *S*s were used in this study. The mean number of dreams per *S* was 9.6, and the range was from 2 to 21. There was no difference between the two groups in this respect.

Each of the 71 dream series, except for nine series which were used in a pilot study, was scored blindly by the writer in accordance with a previously devised scoring manual. They were scored for aggressive and friendly encounters with various characters appearing in the dreams. The characters included family members, friends, acquaintances, and strangers. These do not cover all of the possible aggressive and friendly interactions, since animals, crowds, and prominent people often appear in dreams. The nine dream series referred to above were included with those used to determine scoring reliability and were scored blindly by another psychologist.

Each aggressive act in which the dreamer was involved, both as agent and as object of the aggression, was rated on an eight-point intensity scale as follows:

1. Feeling hostile but no outward expression.
2. Expressing hostility verbally, by looks, or by gestures, criticizing.
3. Preventing from doing something, refusing to do something, being disobedient, lying, requiring someone to do something different from what they are doing, personal frustration, personal rejection.
4. Serious accusation or threat.
5. Stealing, destroying, or attempting to do these things, arresting, spying.
6. Chasing, kidnapping, holding prisoner, about to attack, fighting to resist these things or escape.
7. Physical attack or punishment, shooting, attempting to kill.
8. Intentional killing.

Each friendly act in the dream series was rated on a six-point intensity scale. However, since intensity scores did not provide a wide enough range, they were not used and will not be given here. . . .

Measures of reliability of the writer's scores were obtained by having another psychologist score 173 dreams contributed by 24 *Ss* or 34 per cent of the research sample. Pearson product-moment reliability coefficients between the writer's scores and those of the independent scorer were as follows: total number of characters .97; frequency of aggressive acts .95; intensity of aggressive acts .93; frequency of friendly acts .75. These reliabilities meet current standards for material of this sort and indicate that two independent scorers using the scoring manual can agree to a considerable extent in their scoring of the above variables.

If the general proposition we are attempting to verify is valid, namely, that authoritarian individuals as differentiated from nonauthoritarian individuals tend to think of people in terms of dichotomies because they are unable to tolerate emotional ambivalence toward authorities, then such *S*s should tend to impose a dichotomy on the characters appearing in their dreams by reacting differentially to characters representing the ingroup and those representing the outgroup. In order to test this the dream characters were considered to fall into two groups. One group, consisting of family members, friends, and acquaintances, was thought to represent the ingroup, and the other group, consisting of characters classified as strangers, was thought to represent the outgroup. The specific hypotheses which were tested are as follows:

1. The amount of aggression involving the outgroup will be significantly greater than the amount of aggression involving the ingroup in the dreams of authoritarian *S*s.
2. There will be no significant difference in the amount of aggression involving the outgroup and in the amount of aggression involving the ingroup in the dreams of nonauthoritarian *S*s.
3. The amount of friendliness involving the ingroup will be significantly greater than the amount of friendliness involving the outgroup in the dreams of authoritarian *S*s.
4. There will be no significant difference in the amount of friendliness involving the ingroup and in the amount of friendliness involving the outgroup in the dreams of nonauthoritarian *S*s.

RESULTS AND DISCUSSION

Statistical Analysis. The chi-square test of significance was used in analyzing the data because of the skewed distributions obtained and because of the use of ratio scores. In all comparisons the Yates correction for continuity was made. When two measures on the same subjects were being compared, the following formula for correlated proportions as given by Edwards was used:

$$X^2 = \frac{(d - a - 1)^2.}{d + a}$$

The .05 level of confidence was used as the criterion for rejecting the null hypothesis. For the hypotheses which predict the direction of the scores, a one-tailed significance test was used.

Results. The measure of aggression which we used was the average intensity of aggression. This was obtained by dividing the sum of the intensity scores by the frequency of scores.

From Table 1 it will be seen that the intensity of aggression with the outgroup is significantly greater than with the ingroup for the authoritarian *S*s, thus supporting the first hypothesis. For the nonauthoritarian *S*s, this difference is not significant, as was predicted by the second hypothesis, although it is in the same direction as for the authoritarian *S*s.

TABLE 1

AVERAGE INTENSITY OF AGGRESSION OF 2.0 OR LESS (–) AND ABOVE 2.0 (+) WITH INGROUP AND OUTGROUP

Ingroup	*High Ss* *Outgroup*			*Low Ss* *Outgroup*		
	–	+	*Total*	–	+	*Total*
+	4	8	12	5	9	14
–	10	16	26	5	12	17
Total	14	24	38	10	21	31*

Note. — For High *S*s, $x^2 = 6.05$; $p/2 < .01$; for Low *S*s, $x^2 = 2.12$, $p > .10$.

* One male and one female had no aggressive acts in their dreams and are not included in this comparison.

To test the difference between high and low *S*s directly, with respect to the distribution of aggression with the outgroup and the ingroup, the difference between average intensity of aggression with the outgroup and with the ingroup was obtained for each *S*. In both groups, most of the differences were positive, that is, average intensity of aggression with outgroup greater than with ingroup. The data in Table 2 indicate that the high *S*s have more intense aggression with the outgroup than with the ingroup than do low scoring *Ss* as predicted by the first 2 hypotheses.

TABLE 2

Difference Between Average Intensity of Aggression with Outgroup and with Ingroup

Group	*Below 2.0*	*2.0 or Above*	*Total*
Low	20	11	31*
High	15	23	38
Total	35	34	69

Note. — $x^2 = 3.38$; $p/2 < .05$.

* One male and one female had no aggressive acts in their dreams and are not included in this comparison.

It was intended to use average intensity of friendliness as a measure to test hypotheses 3 and 4, but the range of scores obtained was too narrow. The relative frequencies of friendly acts with the ingroup and with the outgroup were used instead.[3] It was found as shown in Table 3 that authoritarian *Ss* have significantly more friendly acts with the ingroup than with the outgroup, thus supporting hypothesis 3. This difference is not significant for the non authoritarian *Ss* as was predicted. However, the frequency of friendly acts with the ingroup was greater than with the outgroup for both the high-and low-scoring *Ss*. The two groups of *Ss* were compared directly, therefore, to determine whether they differed significantly from each other by obtaining a distribution of differences similar to that used with aggression. Only 13 out of 25 low and 18 out of 32 high *Ss* had positive differences, that is, friendliness greater with ingroup than with outgroup. A chi-square test indicated that the two groups are not significantly different.

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[3] Since the number of dreams per series varied, it was necessary to use a ratio to obtain comparable scores. Relative frequencies were obtained by dividing frequency of friendly acts with ingroup and outgroup by total frequency of friendly acts. Thus a subject may have less than 50 per cent friendly acts with ingroup and less than 50 per cent with outgroup.

TABLE 3

LESS THAN 50 PER CENT (–) AND 50 PER CENT OR MORE (+) FRIENDLY ACTS WITH INGROUP AND OUTGROUP

Outgroup	*High Ss Ingroup*			*Low Ss Ingroup*		
	–	+	*Total*	–	+	*Total*
+	6	2	8	7	2	9
–	7	17	24	4	12	16
Total	13	19	32*	11	14	25†

Note. – For High *Ss*, $x^2 = 4.35$, $p < .05$; for Low *Ss*, $x^2 = .842$, $p > .30$.

* Four males and two females had no friendly acts in their dreams and are not included in this comparison.

† Five males and three females had no friendly acts in their dreams and are not included in this comparison.

Discussion. The present findings confirm the hypothesis that authoritarian subjects tend to think of people in terms of dichotomies by reacting differentially to characters in their dreams classified as family members, friends, and acquaintances (ingroup), and those classified as strangers (outgroup). Furthermore, we were able to predict how the reactions of authoritarian subjects would differ with the two groups of characters, on the basis of the theory of the authoritarian personality as formulated by Adorno and others. Thus our results lend support to the findings of these investigators that authoritarian individuals inhibit the expression of aggression toward family and other ingroup members, and that they project and displace their aggression toward individuals and groups who are socially inferior and those who are perceived as an outgroup. Nonauthoritarian subjects were found to express their ambivalence toward parents more openly and to have less need for the development of a stereotyped imagery of people in terms of ingroup and outgroup.

It will be observed that both of our groups have more intense aggression with strangers than with family, friends, and acquaintances. This confirms a finding by Hall that "the intensity of aggression is greater with strangers than with friends or family members in the dreams of young adults." Since we do not know what strangers in dreams represent, let us assume for the moment that the motivation for expressing aggression with strangers is the same for all our subjects. The question may then be raised as to why the intensity of aggression with strangers is greater than with family, friends, and acquaintances.

Intense aggression is likely to arise between parents and children, between husband and wife, between siblings, and between close friends and relatives. The expression of such aggression tends to be anxiety producing so that indirect means of expressing this impulse are employed in order to keep anxiety at a minimum. One of the characteristics of dreams, according to Freud, is that they allow forbidden impulses to be expressed without the dreamer's being aware of it. Lowy points out in his discussion of dreams that the impulse or emotional quality of the dream is a relatively constant factor, while the objects or characters in the dream are more easily interchanged. If these ideas are applied to the problem of the meaning of strangers in dreams, the hypothesis may be advanced that the greater intensity of aggression with strangers than with family, friends, and acquaintances is due to the indirect expression of aggression with highly cathected objects. Our subjects as a whole tend to resort to the mechanism of ambiguity in order to avoid the anxiety which would be aroused by expressing aggression with characters that can be recognized. This hypothesis is consistent with our finding that the high-scoring subjects show a significant difference in this respect, while our low-scoring subjects do not.

With respect to friendliness our findings are less conclusive as to the difference between the two groups of subjects. Both groups have a greater number of friendly acts with family, friends, and acquaintances than with strangers. However, while the low-scoring subjects show no significant difference in this respect, the high scorers do show a significant difference, thus again demonstrating the tendency to impose a dichotomy on the characters in their dreams. This finding also lends support to previous findings that authoritarian subjects tend to emphasize the positive aspects of their emotional ambivalence toward the ingroup while inhibiting the negative feelings toward it. The fact that a direct comparison between the two groups yielded an insignificant difference appears to be due to the following:

1. The inadequacy of the intensity scale for friendliness to differentiate the two groups necessitated the use of frequency scores. If frequency scores had been used in comparing the groups on aggression, the difference would have been insignificant also.
2. The unreliability of difference scores, particularly with proportions.
3. The expression of friendliness in dreams is not as clear cut as is aggression and is more difficult to score objectively, as shown by the reliability coefficient of .75.

SUMMARY

This study attempted to verify the findings of a previous investigation that highly authoritarian and nonauthoritarian individuals differ in their ability to tolerate emotional ambivalence toward parents and other powerful authorities.

Seventy-one male and female undergraduate students were divided into a high-scoring or authoritarian group and a low-scoring or nonauthoritarian group on the basis of their scores on a twenty-item *F* scale. A series of dreams was obtained from each subject and these were scored for aggression and friendliness with ingroup and outgroup characters. The following predictions were made:

1. Authoritarian subjects would have more aggression with outgroup characters than with ingroup characters in their dreams. This was confirmed at the .01 level.
2. There would be no difference in aggression between ingroup and outgroup characters in the dreams of nonauthoritarian subjects; no difference was found. A direct comparison between the two groups yielded a significant difference in the expected direction at the .05 level.
3. Authoritarian subjects would have more friendly acts with ingroup characters than with outgroup characters. This was confirmed at the .05 level.
4. There would be no difference in friendliness with ingroup and outgroup characters in the dreams of nonauthoritarian subjects; no difference was found. A direct comparison between the two groups on friendliness yielded an insignificant difference and the reasons for this were discussed. It was concluded that

the above findings lent support to the theory of the authoritarian personality as formulated by previous investigators.

No. 12

THE QUANTIFICATION OF HOSTILITY IN DREAMS WITH REFERENCE TO ESSENTIAL HYPERTENSION*

Leon Saul, Edith Sheppard, Dorothy Selby, William Lhamon,
David Sachs, and Regina Master

In investigating methods for the measurement of emotional forces, a preliminary hostility scale was derived from a content analysis of 500 manifest dreams obtained from 200 subjects presenting wide variation in personality structure. This scale was found to differentiate hypertensive from nonhypertensive subjects.

Although most of the studies using dream material have been chiefly concerned with uncovering the latent dream thoughts, the highly characteristic nature of the manifest dream for each person was observed by Freud and corroborated by others, for example, Hall and French. Although unique for each individual, the manifest dream seems to reveal similarities in those suffering from certain disease processes.

Hostility Scale. In our material, hostility seemed present in greater intensity in the manifest dreams of hypertensives than in those of normotensives, and its presence in this degree can be used to distinguish the former from the latter. A 6-point scale to measure hostility has been constructed, demarcating three major categories in the intensity of its expression. The determination of the degree of hostility was arrived at on the basis of clinical experience. Each dream is broken up into what Freud has termed "conceptual elements" (similar to the independent clauses of sentences) which are scored individually and then totaled to give the hostility rating for the dream—any dream element that represents the actual or threatened: death of persons, receives a rating of 6; destruction of objects, 5. Such acts or scenes

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*Abridged from *Science, 119:*382-383, 1954. Reprinted by permission of Dr. Leon Saul and the American Association for the Advancement of Science.

fall within the maximum category. In the medium category fall any elements that represent actual or threatened injury or damage —to persons, rated as 4; to objects, 3. The minimum category includes all elements that represent discomfort or minor impairment—to persons, rated as 2; to objects, 1.

Testing the Scale. The scale was tested on 78 dreams obtained from 33 subjects, 17 of whom were chronic hypertensive patients from the Hypertensive Clinic of the Hospital of the University of Pennsylvania, and 16 of whom were normotensive summer school college students. Each subject provided at least two dreams of at least 30 words. The average length of the dreams was about 65 words, and there was no significant difference in length between the patients and the controls. The dreams of patients had to be collected by interviews with an experienced social worker, whereas control dreams were written out by the subjects on a standard questionnaire form. All dreams were dreamed within a period of 2 months from the time of collection. Neither patients nor controls were aware of the purpose of the work.

Three judges were trained in the use of the scale. All three were second-year medical students at the University and were unaware of the purpose of the study. Hostility scores for each dream were computed by each judge and the rank difference correlations between the three were .83, .84, and .85, all significant at better than the .001 level.

Hostility scores for each dreamer were then computed as a mean score taken from the averaged scores given each dream by the three judges. The difference between the means of the hypertensive group and the control group was significant at better than the .001 level by the t-test appropriate for two samples where F is also significant.

Discussion. This series is limited by the fact that the control and experimental groups are not adequately random or well matched. The uncontrolled variables that merit further study include age, race, health, and socio-economic status. It is also recognized that hostility is significant in other psychosomatic illnesses. It is felt that this pilot work is encouraging and that further refinement and use of the hostility scale, plus measures of other emotional forces, now in varying stages of development, may contribute: a method for the quantitative study of emotional forces; further understanding of essential hypertension and other psychosomatic illnesses; possible applications to diagnosis, therapy, and prevention.

No. 13

STUDIES IN THE PHYSIOLOGY OF AWARENESS: THE INCIDENCE AND CONTENT OF DREAM PATTERNS AND THEIR RELATIONSHIP TO ANOXIA*

J. W. Lovett Doust

INTRODUCTION

The study of dreams is a study of a group of epiphenomena associated with states of diminished awareness. No matter whether such dreaming occurs in natural sleep, in states of reverie interspersing normal levels of consciousness or in pathologically or pharmacologically induced aberrations of consciousness, it would appear that the principle that dreams do not occur other than at levels of lessened awareness is generally accepted. From the point of view of neurophysiology, it also seems reasonably clear that the formation of the visual and auditory hallucinations, illusions and delusions forming the manifest formal content of dreams is dependent upon fairly precise cerebral localization, the temporal lobe and Brodman's area 19 being especially important in these respects. . . . Psycho-physiologically a number of attempts have been made to assess the nature and quality of stimuli normally inciting dreams. . . . the observations of Monge concerning the increased incidence of disturbing dreams when dwellers at high altitudes suffer from chronic mountain sickness, and of McFarland on the changing dream habits of a party of mountaineers in the Chilean Andes as they ascended steadily to ever-increasing altitudes (and hence to progressively greater degrees of anoxic anoxia), are of immediate interest. They are in direct line with the findings of anoxaemia in sleep, and suggest

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*Abridged from the *Journal of Mental Science, 97:*801-811, 1951. Reprinted by permission of The Royal Medico-Psychological Association.

a positive relationship between the manifest content of dream patterns, emotional tension, reduced awareness and anoxaemia.

An opportunity to contribute to this varied literature occurred when a group of healthy normal individuals was made available for investigation at the Institute of Psychiatry. It appeared to be of value to contrast the dreaming habits of such a normal control group with those of a group of psychiatrically disturbed patients, and to accomplish this in a fashion permitting of statistical analysis of the data and the control of some at least of the many variables involved. The investigation presently reported represents an attempt to study and inter-correlate a number of these variables. It was decided to limit the inquiry for the sake of clarity to a few, yet well-defined elements of the dream; to bring out, so far as was possible, the epiphenomena of states of relative unawareness; and to concentrate on the differences, if any, appearing when the tendencies shown by the healthy group were compared with those of the psychiatrically disturbed patients.

CLINICAL MATERIAL AND METHODOLOGY

The responses of 553 individuals were investigated. Of this total 260 were *healthy control subjects,* 208 of whom were army personnel and the remaining 52 nurses, physicians, hospital staff and business folk. All the soldiers were males, while the sex distribution of the remaining controls was males 30, females 22. The overall age range for the control group was 18—45, with a mean age of 25.93 years.

An abnormal group of 293 patients made up the rest of the total. Of these, 14 were out-patients from the West End Hospital for Nervous Diseases and suffered from *migraine;* . . . The remaining patients were all suffering a *psychiatric* disturbance; 128 were soldiers drawn from neighbouring military hospitals, and the rest were in-patients at the Maudsley and Bethlem Royal Joint Hospitals. The army group were all male; the civilian group included 100 females. The age range for the entire abnormal group was 15—75 and the mean age 27.63 years.

The distribution of diagnoses among the psychiatric group of patients was as follows:—

(a) *Character disorder:* 37 cases of psychopathic personality.

(b) *Psychoneurosis:* 76 patients with hysteria; 72 with anxiety state.

(c) *Psychosis:* 41 patients with affective disorder—depression; 38 with schizophrenia.

(d) *Organic affection:* 15 cases of idiopathic epilepsy.

. . . During the course of an interview each subject was asked a number of questions concerning the pattern and type of his dreams, and the answers were recorded in questionnaire fashion for future statistical analysis. The actual questions asked were as follows:

1. Do you sometimes have terrifying dreams or nightmares?
2. Do you day-dream much?
3. Do you like day-dreaming and building castles in the air?
4. When you dream at nights do your dreams seem sometimes very real?
5. Have you ever had difficulty in deciding what was a dream and what was real life?
6. Do you dream in colours sometimes?
7. Have you ever felt that your body did not belong to you?

A smaller sub-group of 135 subjects were also asked to record the last vivid dream they could recall, and various features of these actual dreams were selected for comparative analysis in order to see whether the dreams of 67 normal healthy subjects differed in any significant fashion from those of 68 psychiatrically disturbed patients. All subjects in this sub-group, both controls and patients, were males and army personnel; particular attention was paid to assessing the influence of their military experience on the content of the recorded dreams. Features classified for this group were as follows:—

(A) *Content suggesting temporal sequences:* Obvious reflection of current life situational stresses; past experiences; simple future possibilities; possible future fear fulfillment; war experience.

(B) *Participants in dream:* Animals only; humans only; animals and humans; self and animals; self recognized as participating.

(C) *Sex of participants:* Male only; female only; male and female. (Note: All dreamers in this group were of male sex.)

(D) *Predominating affect of dream:* Pleasant; unpleasant; anxiety; anxiety awakens dreamer; anger. (Note: When more than one affective state seemed vividly represented, each was included.)

(E) *Phantasies of violence:* Violence mentioned in any form; fire; wounding or maiming; death or dying.

(F) *Phantasies of levitation:* Sensation of being suspended or flying in any fashion; falling or crashing or sensation of going down suddenly.

(G) *Pavor nocturnus:* Any dream ending with orgasm.

The percentage saturation of oxygen in the arterial blood in the awake state was separately determined on a further sub-group of 176 patients, which included both healthy controls and psychoneurotic patients. The spectroscopic oximeter technique of Ray as modified by the present writer was employed for this purpose, the equivalent "reduction time" being expressed in seconds for comparison purposes. . . .

No effort was made to encourage associations by the subjects on the dreams recorded—a feature which would detract markedly from their interpretation on orthodox psychoanalytic lines. Such, however, was not the main purpose of the investigation. Certain schools of psychodynamic psychopathology are not as insistent as the pupils of Freud on free association, holding that interpretation can go far if certain broad principles are observed. One such school is that of W. Stekel, . . . An attempt to classify further the dynamic content of the recorded dreams of the two selected normal and abnormal army sub-groups has been made in accordance with what Stekel called the "symbols of parapathy." These symbols he has classified into 6 groups, divided as follows: (1) All authority figures; (2) the brother, sister, friend, enemy, uncle, aunt, the "other," etc.; (3) servants; (4) wild beasts, devil, criminal, outcast, etc.; (5) the cage, cross, little woman, old house, new house, church tower, palace, embankment, chain, rope, shadow, wound, abscess, tumour, privy, shirt, dress, skin, helmet, tight shoe, spectacles, crutch, staff, unbrella, mask; (6) the blind man, deaf man, dumb man, lame man, lunatic, idiot.

. . . The appendix completing this paper gives sample dreams from the 135 recorded during the investigation, and illustrates the type of content occurring in a number of different psychiatric conditions.

RESULTS

. . . The statistical method employed for analysis was that of the 2 x 2 and 2 x *k* chi-squared, Yates' correction for continuity being applied to the computations. . . . Student's *t* test was employed to test the significance of differences in the cross-correlation of arterial oxygen saturation values and certain of the dreaming characteristics.

Dream Pattern—Questionnaire Technique. Nightmares and frightening dreams were significantly more frequent in all psychiatrically disturbed groups than in the healthy controls, as was the ability to recognize colour in the dream experience. More patients confessed to an occasional inability to distinguish dreams from reality than did the controls. There was no significant difference in the incidence of obviously wish-fulfillment dreams, nor in those subjects who admitted enjoying reverie experiences.

Formal Content Analysis. The results indicate that fear and anxiety situations figure significantly more commonly in the neurotic patient's dreams than in those of the controls, while the latter's phantasies more often included human beings than did those of the neurotics. War experiences appear to be of little importance in distinguishing the two groups. Dreams of violence, and especially of wounding, maiming and dying, are more characteristic of neurosis than of normality. Both groups showed a higher incidence of unpleasant than pleasant dreams.

Stekelian Symbols of Parapathy—Manifest Psychodynamic Content. Two of Stekel's 6 groups of common "symbols of parapathy" yielded significant difference between the healthy subjects and the neurotic patients. These were No. 2, dealing with relatives, friends, a person unknown, etc., and No. 5, houses old and new, wounds, etc.

Blood Oxygen Saturation Levels. Despite suggestive differences between the mean values of groups admitting to nightmares and to no nightmares, those who stated they enjoyed letting themselves fall into reverie states (day-dreaming) and those who responded to the invitation to record their dreams as opposed to those who did not, these differences were not significant when Student's *t* tests were applied.

DISCUSSION

Considerations of growth and development are keys unlocking many of the hitherto closed doors of aetiological problems in psychiatry. The application of ontogenetic principles to the analysis of the dream life of mentally disturbed patients shows these individuals often to be examples of developmental arrest or deviation, especially in the sphere of emotional maturation. The findings of the present investigation accord well with these concepts, the concordance being exemplified by the conclusions of similar studies made on children's dreams. Jersild, Markey and Jersild's study of the dreams of children up to 12 years old showed that at every age unpleasant dreams were more common than pleasant ones. Foster and Anderson, in an analysis of children's dreams, found that the subject-matter of unpleasant dreams tends to change as age advances, animals predominating in the 1–4 age-group, strange people and abstract forms of unpleasantness in the 5–8 year-olds, while from 9–12 years of age the self participated in unpleasant dream experiences. This latter study also revealed that the better the health of a child the fewer dreams he tends to have, and that dreaming tends to follow states of emotional tension of the preceding day.

The sleep rhythm of children differs markedly from that of adults. This is particularly evident in the temporal relationships between fully awakened states and states of full sleep, children up to puberty spending significantly less time in states of relative unawareness, such drowsy states being "extremely short, if they exist at all." As Hurlock points out, this physiological fact is probably of greater importance than Freud's belief that children dream less than adults because they have fewer unfulfilled wishes than adults.

The sample dreams given in the Appendix illustrate some interesting differences between the various groups of subjects. Many of these differences are qualitative and classification is difficult; others conform to associations formed by impression among clinicians and psychotherapists. Stekel, for example, states that every dream analyses itself, and that in the dream the dreamer recognizes his emotional conflict and its cause. For the sensitive psychotherapist the *impasse* of the epileptic patient (dream No.

22) is quite characteristic, as is the circular type of mental clouding experienced by the manic-depressive (dream No. 15) and the phantasy powers of the *alter ego* of the schizophrenic patient (dream No. 21).

In general dreams are the mirrors of anxiety; if such anxiety seeks for expression in a psychopathic personality with difficulties in the socio-cultural-ethical spheres of reaction, his dreams tend to be coloured by such difficulties of adjustment (dreams Nos. 16–20.) Similarly if the anxiety appears in an emotionally immature, neurotic subject, the affect, the symbols, the inadequacy, repression and immaturity will not only be reflected in the patient's dreams, but also will be so in a unique and individual fashion in accordance with his specific personality experience (dreams Nos. 5–14 as compared with dreams Nos. 1–4).

SUMMARY

1. The dreaming habits of 260 healthy control subjects and 293 patients with such psychiatric disorders as psychopathic personality, psychoneurosis, schizophrenia, depression, epilepsy and migraine were investigated.

2. A questionnaire assessment revealed statistically significant differences between these groups with respect to incidence of nightmares and frightening dreams, recognition of colour in dreams, hypnagogic sensations of depersonalization, and occasional inability to distinguish dream life from reality situations.

3. Formal content analysis of actual recorded dream material in 67 controls and 68 patients showed no significant differences between the groups *vis-a-vis* simple wish fulfillment, though when these wishes were broken down into future fear fulfillment and other simple "future" dreams, the abnormal group scored definitely higher incidences for the former. The dreamer appeared in his own dreams an equal number of times in the two groups, but there was a significantly higher incidence of human representation in the dreams of the healthy controls than in the neurotics. Phantasies of violence, wounding, maiming and dying also played a greater role in the dream life of the disturbed group than in that of the controls.

4. Classification of the symbols used in manifest content of

the recorded dreams in accordance with W. Stekel's six groups of "symbols of parapathy" showed significant differences between controls and psychiatric abnormals for two of these groups.

5. Cross correlation between certain features of the dreams of 176 individuals and their awake resting arterial blood oxygen saturation, as determined by a method of spectroscopic oximetry, showed tendencies in the expected direction but no statistically significant differences.

APPENDIX

EXAMPLES OF ACTUAL RECORDED DREAMS

1. *T.H.—, aet. 22. Healthy control.*

"The last dream I had was about the girl whom I was courting, but eventually finished with. Actual moments of happiness went through my mind, of times we had had together, good times and bad times, in my own home and in hers; films we had seen, dances we had been to and the generally happy times together."

2. *M.B.—, aet. 23. Healthy control.*

"Sat on the back seat of the bus with the girl next door."

3. *J.S.—, aet. 22. Healthy control.*

"Playing with and captaining the Glasgow Rangers F. C. and winning the Scottish F. A. Cup and League."

4. *N.S.—, aet. 38. Healthy control.*

"I dreamt I went home and my wife wasn't feeling quite well."

5. *F.B.—, aet. 18. Hysteria and emotional instability. I.Q.— SG4*

"I have a dream nearly every night about my father and grandmother. My father is blind and I keep dreaming about him."

6. *F.S.—, aet. 29. Amnesic hysteria and emotional instability.*

"While waiting in the Camp under 'protective custody' to come here, I dreamt that some person unknown had sat on my baby and squashed her ribs in and she was taken to hospital. That was all that was involved but it was most vivid. I had not seen my family for several days at the time and I had been thinking of them a lot also when I returned on that particular night."

7. *T.R.—, aet. 17. Sensory hysteria and hypochondriasis.*

"I dreamt my mother was dying. I could see her lying on a bed and I woke up sweating."

8. *L.M.—, aet. 18. Hysteria: lifelong nocturnal enuresis.*

"When I go to sleep sometimes I get a colour dream. It's just that every colour runs into each other and keeps going round and round for a few minutes and then it goes away."

9. *J.M.—, aet. 19. Anxiety hysteria with overdependence and obsessionality.*

"I was flying in the air with no apparent reason and with nothing to support me. It was over a large crowd, and then I met a woman with whom I had intercourse."

10. *R.B.—, aet. 30. Chronic anxiety state.*

"My last dream was of me having to return to the Army and leaving my wife and child. I lost my temper as I returned to the Army and went for a long walk and I felt myself falling down a big cliff, then I awoke."

11. *L.J.—, aet. 21. Chronic anxiety state.*

"I dreamt that I was attacked by strange animals and was about to be killed."

12. *A.E.—, aet. 18. Acute anxiety state with depression.*

"I dreamt that I was fighting a man who had a knife in his hand and was trying to stab me with it. He almost succeeded when I suddenly woke up."

13. *A.F.—, aet. 39. Chronic anxiety state and depression.*

"I dreamt I was involved in a motor cycle crash on the speedway and broke my leg."

14. *J.O.—, aet. 30. Chronic anxiety state with depression: tuberculophobia.*

"One night I dreamt I saw my mother, who has been dead since 1946. Also my sister, who has been dead since 1933. Also my youngest brother, aged 17, who is alive at present, but in the dream he was a cripple with both legs amputated, sitting on mother's knee."

15. *T.S.—, aet. 19. Depression in a cyclothymic personality.*

"Everything I saw was only half completed; some had arms and no legs, some had no heads. Everything seemed distorted and confused."

16. *E.M.—, aet. 19. Psychopathic personality with emotional abnormality.*

"Bombers dropping bombs on a town is all I can remember."

17. *J.H.—, aet. 37. Psychopathic personality with anti-social trends.*

"I had won a lot of money by horse racing and was able to buy my own house and settle down with the woman I live with at present. I dreamt also that we went choosing furniture and setting up a home for two, but it was only a dream."

18. *D.A.—, aet. 25. Psychopathic personality: homosexuality.*

"I dreamt that one of our corporals was in a bar with me in the West End drinking, and he was the same way as I am."

19. *A.D.—, aet. 19. Psychopathic personality: sociopath.*

"Living in the jungle and intending to shoot big game. Finding all the animals unusually friendly and speaking to me quite understandably. I finished up by shooting back at the hunting party and giving advice to the animals, but I didn't reach the end of this dream, or any other."

20. *H.T.—, aet. 22. Psychopathic personality: homosexuality and depression.*

"I dreamt that I was being pursued by a crowd of people, and no matter how hard I ran they still gained upon me. I was dressed only in a vest, which embarrassed me intensely as I could only pull it down as far as my navel. Just as the crowd were clutching at me, I awoke."

21. *N.B.—, aet. 18. Early schizophrenia.*

"I dreamt I achieved my ambitions. Corrected the errors of others. Propounded startling theories and disproved great theories of the past. Achieved distinction in many branches of knowledge. That no one has ever disproved me in argument because there were many as against myself."

22. *J.K.—, aet. 19. Idiopathic epilepsy.*

"A dream of being locked in a shed from which I was unable to escape."

No. 14

THE PSYCHOPATHOLOGY OF DREAMS IN SCHIZOPHRENIA AND ORGANIC PSYCHOSES*

MEDARD BOSS

(TRANSLATED BY PETER RABE)

. . . Freud's discovery concerning the laws of the dreamwork has been substantiated repeatedly by unprejudiced observation. One can take no serious exception to the existence of latent dream-thought behind the manifest dream content. Also the four main mechanisms of the dreamwork: displacement, condensation, regard for representability, and secondary elaboration, are facts capable of verification.

With this as the basis for a dream psychology we are justified to consider a psychopathology of dreams. Not only may we expect further insight into the dream problem as such, but on the basis of changes in dreamlife due to psychosis we may possibly draw important conclusions concerning the psychotic phenomenon itself. . . .

Our actual problem, the influence of psychosis upon dream construction, has hardly been considered in the literature. There are comments by *Geissler:* The dreams of epileptics are frequently frightening or of erotic nature. *Tissie'* remarks: dreams of manics are characteristically bizarre, in dementia they are flighty, in

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stupidity they are incoherent and indefinable. *Artigues* wrote that melancholics have terrifying dreams, manics cheerful ones.... In 1901, *Sante de Sanctis* offered the first systematic compilation of dreams in mental cases; however, his account is largely in the nature of a summary. On the basis of his dream investigations on 91 epileptics he draws the following two conclusions: 1) while cortical (psychic) irritation and mild psychomotor discharge (incomplete seizures) impair sleep and heighten the automatic phantasy activity of the psyche, complete motor seizures—especially when they are severe, frequent, and prolonged—have the opposite effect after a longer or shorter period of time. 2) In the course of time epileptic fits have a much more inhibiting effect upon the dream automatism than in the case of hysterical fits. The dream content of epileptics is mainly concerned with erotic and expansive themes, such as flying—and falling dreams.

In addition *Sante de Sanctis* speaks of actual "dream equivalents" to epileptic fits. Typical examples are dreams concerned with feelings of communality (gemeingefuehl) and especially of movement sensations. These dreams are brief, very vivid, not always unpleasant, but consistently accompanied by fleeting and intensive sensations: heat on the face, burning in the throat, coldness or spasms in a limb, wind gusts, dizziness, falling, flying away, and floating up in a room. These dreams never have an actual termination. The dreamer does not know how the dream ends.

Goettke corroborates and extends *Sante de Sanctis'* investigations of dreams by epileptics. In his conclusion he states in part: a) dream life of epileptics diminishes with increased age similarly as in the case of normal individuals. Aside from that the epileptic condition seems to further a diminuition of dream life. b) The nights during which seizures occur are dreamless. c) Narcoleptics dream during their seizures, psycholeptics do not. d) Sleep is dreamless after epileptic as well as after organic seizures in general. e) There are "dream equivalents," consisting of frightening, ugly dreams, which last as long as the seizureless interval. However, they diminish in frequency during this time. After a seizure, or sometimes shortly before, the character of the dreams changes: the content becomes beautiful and pleasant. f) The most frequent dream content with epileptics is concerned with religious themes and with the homes of their relatives. g) Dreams during the periods of moodiness and in the prodromal phase of a seizure are loaded with affect, usually terrifying or frightening in nature. Frequently the dreams acquire this characteristic shortly before the actual appearance of moodiness, and often they remain depressive for months after the moodiness has abated. . . .

To our knowledge the dream characteristics of organic psychoses have never been studied. Concerning the dreams of alcoholics *Sante de Sanctis* has collected the following information from the literature and tested it by his own observations on 35 alcoholics: "1) Alcoholic indulgence increases hypnogogic—and dream activity. There is pathological distortion of the physiological illusions and hallucinations of the dream. 2) The phantasies in dreams of drinkers have a number of characteristics: they are particularly concerned with animals. 3) With regard to affect the dreams are usually terrifying. 4) The physiological illusions and hallucinations of the dream are intermingled with the physiological illusions and hallucinations of waking life insofar as they contain the identical phantasies and affects. 5) The exceedingly variable and transitory deliria of drinkers are frequently intermingled with the illusions and hallucinations of the hypnogogic period and the dreams. The deliria are thus very similiar to the dream verbalizations. . . . 6) Frequently, the alcoholic delirium begins in a dream and is continued into waking life. Therefore, brain disturbances (mental disturbances) of alcoholics often begin with pathological sleep—and dream manifestations. 7) The dreamlife of drinkers has common features with those of other toxic conditions (opium, hashish, etc.) and certain neuroses (hysteria)." . . .

A study by *Hirschmann* and *Schilder* treats of dreams from the symptom area of manic-depressive derangements. Special emphasis is placed on melancholics. Even with severe melancholia cases both authors found with surprising frequency a dream-type with happy contents. The patients negate their condition and find themselves returning to their homes. On this basis the authors conclude that melancholics are neither incapable of psychically creating cheerful scenes, nor do they lack the ability to invest the scenes with adequate emotions. . . .

Two points are relevant to a critique of the present state of dream-psychopathology: dream-research has been particularly neglected in the most important groups of psychoses. This is the reason why we have chosen the dreams of schizophrenics and of organic psychotics for our own study. In addition, there is the general methodological objection that earlier investigations neglected to make indispensable comparisons between dreams of psychotics and non-psychotics, as well as between different types of psychoses. We possess 3000 dreams of healthy and of neurotic individuals as material for comparison.

The collecting of dreams by psychotics encountered certain difficulties. It became apparent that schizophrenics regard their dreams as a highly intimate matter which they guard with vigilant care. This secretiveness concerning their dreams may result in a flooding of their unconscious and a deeper deterioration into psychotic states.

In the case of organic psychotics the main difficulties are concerned with the patient's forgetfulness . . . and the problem of differentiating between actual dreams on one hand and hallucinations, confabulations, and memory deceptions on the other. All cases where this differentiation was impossible have been excluded from this study.

In the course of several years we collected 620 dreams by schizophrenics and 200 dreams by organic psychotics. The 620 dreams by schizophrenics were collected from 150 different patients, viz., 6 cases of schizophrenic simplex, 44 hebephrenics, 38 paranoids and 62 catatonics. The 200 dreams by organic psychotics are gathered from 21 senile dementias with 90 dreams; 3 arteriosclerotics with 12; 12 paralytics with 87, and 4 Korsakows with 11 dreams. From individual patients we possess dream series with as many as 20 dreams covering up to 30 years.

THE DREAMS OF SCHIZOPHRENICS

If we take each of our 620 dreams by schizophrenics and inspect it separately, at least one third of all samples cannot be distinguished in form and content from dreams by non-psychotics. In all cases we find qualitatively the same formal dream-characteristics as with healthy persons or neurotics. We observe the work of the dream censor which conceals intolerable dream thoughts behind harmless, manifest dream pictures. We find anxiety reactions of the ego in cases of the non-functioning censor. We recognize the products of the dream work: condensation and displacement, transformation of ideational products into predominantly visual hallucinations, and the attempts of secondary elaboration to give the dream items a certain continuity. Furthermore, the dreams of schizophrenics display the same impulse activities (Triebregungen) and complexes of sexual and aggressive nature—in the broad sense of the term—as found in dreams of non-schizophrenics.

For instance, a female hebephrenic with a 3 year old illness reported the following dream:

> "A cow, which is to be slaughtered, is lowing in the stable of our tenant. I wanted to go and help the cow, but got stuck in the filth in front of the stable door. The nursemaid Anna came over from the manor and ridiculed me. I awoke in great fear and excitement."

We can find any number of dream examples by non-psychotics which are identical in structure and even detail. The same hebephrenic recalls numerous dreams from her prepsychotic period: of several similar dreams we quote the following:

> "I am taking care of my little brother who is still lying in the cradle. Mother had just fired the nursemaid Anna and had gone to the city to get another girl."

In the 9th year of her illness, when the patient's condition had progressed to the point of constant hallucinations and incapacity to perform continuous work, she dreamt:

> "I crossed a swamp with mother and Anna. Suddenly I was seized with a terrible rage against Mother, and immediately I pushed her into the swamp, cut off her legs, and pulled the skin off her body. Then I watched her drown in the swamp and had a certain feeling of satisfaction. As we decided to walk on, a large man with a knife in his hand came running after us. First he grabbed Anna and then me. He put us on the ground and then had intercourse with us. Meanwhile I was not afraid at all, and suddenly I was able to fly over a beautiful landscape."

Dreams of this sort are also in evidence with non-psychotics. However, the deep reaching influence of the schizophrenic process upon the dream no longer escapes us, if we do not study each dream separately, but compare dreams by the same patient from different periods of time; when we pursue entire dream series and compare the manifest dream content with the psychic personality when awake. Only then do we discover the transformation of the dream life which occurs without external instigation, and which is characteristic of the schizophrenic process. We observe in the earliest dream, from the pre-psychotic period, that our patient is taking care of her youngest brother. Of course, even in this dream she removes her mother and takes her place, but this is done in an entirely legitimate, ego-justified (ichgerechte) manner. She only substitutes for the mother who is occupied elsewhere. The nursemaid Anna has been fired. She was the girl, incidentally, who had been telling the patient obscene stories and had instigated her to masturbation. The dream succeeded in putting the unconscious wishes into a form which is agreeable to the conscience. In the second dream she disguises the cow as her mother. (Due to her now developed schizophrenia the patient was able to interpret the dream herself.) Repeatedly during her first schizophrenic episodes she was tempted to kill her mother. In the dream, however, as counter-tendency is still active: she wants to help the cow which is to be slaughtered. Tendency and counter-tendency have her paralyzed. The patient gets stuck in the filth before the stable. The filth stands for the dirty stories which the nursemaid had told her. No longer is her better conscience master of the situation as in the first dream; she is in danger of bogging down in the filth of her primitive impulses. Therefore, the anxiety of her ego. In the last dream her entire orientation, her dream-conscience, is completely altered while on the waking level she still gives the impression of a virtuous, proper young girl. In this dream she dares to kill and torture the mother with a certain satisfaction, and she enjoys the rape by the man.— One further dream, from the 12th year of her illness, when her personality had deteriorated into silly, hebephrenic demeanor, goes as far as undisguised incest. She dreams:

> "There was a woman in a crouching position, with doubled up legs, and a man riding on top of her. Suddenly I sneaked into this woman, and my father was drawn into this man.

> He came to me and committed all kinds of sexual obscenities with me."

Her ego no longer fights against her impulses. It is carried along by her primitive instincts, mingles with these forces, and no longer reacts with fear and flight tendencies. Such dream-pictures, devoid of any symbolic disguise as in the last two dreams of this patient may possibly be encountered in impulsive amoral individuals (triebhaften Amoralischen). However, this would not be expected in a girl of the type and character of the patient, unless a schizophrenic process had set in.

A young man, still healthy and successfully studying, had the following repeated dream around the age of 20:

> "I am building a beautiful house which has two balconies, decorated with beautiful flowers. Then a rich gentleman appears who wants to buy the house from me. I only give it to him when he pays me a million dollars for it."

One year after the onset of a severe catatonia, during a well-oriented remission period, he again dreamt of building the same house. However, this time a burglar enters the basement by night. He set fire to the house so that the dreamer had to flee, and he awoke in a considerable anxiety. Two years later, after another catatonic agitation episode, he dreamt of a war between himself and numerous enemies. He hid behind the well-known dream house and shot all the enemies from his hiding place. It was a great slaughter. Again one year later, when he had progressed considerably into his psychosis, he dreamt:

> "I am lying in bed with a beautiful woman. The woman's husband enters and wants to murder me. However, I strangle him and throw him out of the window. I do the same to the numerous policemen who want to capture me. In the end I go downstairs to the front of the house and cut the limbs and heads off all the corpses. All this filled me with an inordinate greed."

In this dream series, again, we see in the first dream how the relatively healthy ego finds a proper form of disguise for the unconscious wish. The patient himself, with his schizophrenic understanding of symbols, interprets the beautiful house first as the house of his mother and then as the mother herself. He obediently surrenders this possession to the father-figure of the large, rich man, and in return, contents himself with a large amount of money. In the later dreams the conflict with the other man is no longer so peaceful. He has to flee and awakes in fear, because the fire in the house has become that dangerous to him. In even later phases his dream-conduct undergoes further changes. He no longer gets along with his rival, he does not flee, but he is fearless and aggressive and becomes increasingly blood-thirsty and destructive.

We obtained the following dream series from a 38 year old paranoid. Five years before onset of schizophrenia, while the patient was still an enterprising officer and ladysman, he occasionally dreamt that he was parched with thirst and lost in a desert. Finally he sees a ravine in the distance, and he hears the rushing of water. But each time he attempts to approach the ravine a large bear emerges who threatens to devour him. Shortly before the appearance of his paranoid ideas the patient frequently dreamt of his former teachers who treat him unjustly in the dream and with whom he had ensuing quarrels. In his psychosis he was in direct contact with Christ. During this time he dreamt that he was received with much pomp into the heavenly crowds as spiritual brother of Christ. One year later he saw God stand before him with a flashing sword. The patient was permitted to touch this sword with his hand, and then he noticed that his body was opening and a new son of God was born out of him. Many angels were standing about and they sang: You are the omnipotence and the brother of God. Two years after onset of his paranoia, when he lived in pronounced autistic isolation, he dreamt he was Hercules, and all the hospital attendants danced about him and kissed him.

The transformation of these dreams with respect to content and representation hardly requires comment. I may add that the ravine in the first dream example is in reality located near the place where the patient's mother had been shot many years ago. This is an additional reason for considering this dream as one of the usual oedipus dreams. The preponderance of narcissistic and homosexual tendencies becomes increasingly apparent in later dreams. In the last examples the formerly much repressed homosexual attitude appears in undisguised form. . . .

The quoted succession of dreams might be of little importance, if we were treating of single, isolated examples. However, we succeeded . . . in collecting series material from two schizophrenia simplex patients, nine hebephrenics, five paranoids, and eleven catatonics, altogether comprising 290 dreams. And all these patients, during the separate phases of their illness, dreamt predominantly according to the indicated dream-types. Mixing of the dream structures occurred only temporarily during the transitional periods. In that manner, the dream life of schizophrenics indicates much more clearly and reliably than the waking personality of the patient—which is too often surrounded by a deceptive facade—how the schizophrenic deterioration process diminishes the repressive faculty of the ego and the conscience, until nothing is left of them. This destruction is evidenced in the dreams by the gradual weakening of the dream censor which, prior to the illness, may have been unusually severe. As a consequence, certain impulse tendencies (trieb tendenzen) of the unconscious breakthrough relatively early. They are incompatible with the conscious orientation and moral attitude of the individual and therefore create tremendous anxiety dreams. Finally, the destruction progresses so far as to permit appearance of even the coarsest impulses without any disguise or symbolic representation in the consciousness of the dream. Manifest content and latent dream thoughts become identical, and no opposing ego-activity remains in evidence. Since in healthy individuals, too, the dream-censor functions less severely than the waking conscience, the pathological destruction of the repressive function in schizophrenics comes into evidence particularly early in the dream. We have found that certain poorly censored dreams offer an early and weighty symptom for the diagnosis of schizophrenia. Such dreams contain little symbolic disguisement. Their obvious content stands in sharp contrast to the moral attitude of the patient, and elicits little anxiety or any other affect-colored defense reactions of the ego.

It is interesting to note that in addition to our described findings the following has found repeated substantiation: the impulses which are so drastically manifest in dreams of later phases of hebephrenia are predominantly, but not exclusively, of coarsely sexual nature, in the restricted sense of the term. With catatonia we find predominantly aggressive impulses in dreams, and with paranoids an increasingly obvious homosexual-narcissistic tendency. If these regularities would find future substantiation, an interesting parallel might be drawn with respect to depth of regression of the impulse life between hebephrenia and hysteria; catatonia and compulsion neurosis; and paranoia and the homosexual-narcissistic character neuroses. Furthermore, these dreams by developed psychotics are distinguished from the dreams of all neurotics in-so-far as the quantitatively more intense destruction tendencies give the dream content a much more brutal, unconcerned, and sadistic coloration.

It is understood, of course, that dream series develop in the indicated linear manner, towards more undisguised dreams, only as long as the psychosis itself makes progress and remains active. During occurrence of remission, be it spontaneous or evoked by therapeutic interference, the dreams also change. However, it is of great theoretic and practical importance that the dream life never changes in the same tempo and hardly ever to the same extent as the remission of the waking personality. No matter how thorough a patient's remission may appear after shock therapy or sleeping cure, his dreams will remain abnormal to a high degree. Only a very small group of individuals are an exception to this: they are exclusively patients who have gone through a single, though severe, catatonic episode, and who have gone into practically spontaneous remission within a few days. We have discovered only five dreams of this type among our collected material. While these patients would dream with considerable agitation before their episodes, the dreams during remission were identical to the dreams of the most serene non-neurotic, average individual who is in daily and practical contact with the world. . . .

Interestingly enough, *Goettke's* investigations of the dream life in epileptics reveals a similar state of affairs. *Goettke* describes the dreams before epileptic seizures as fearful and torturing, while they assume a pleasant and undisturbed character after the paroxysm. No dreams occur during the nights of the seizure itself. This dreamlessness, which is only the rule during the very first acute episodes and usually disappears in the later exacerbation of chronic psychosis, constitutes a valuable symptom for differential diagnosis in distinguishing between schizophrenic excitation states and hysterical attacks. During the latter the patient dreams especially vividly. As a rule, however, the dreamless phase lasts beyond the acute episodes and reaches far into the schizophrenic remission period. In less acute schizophrenic episodes which were not entirely without dreams, the dreamless phase almost always disappears upon commencement of a good remission. Independent of the causes of remission we find in almost all cases of spontaneous improvement—as well as after successful sleeping cures or insulin shock—that the patients can report no dreams for many days, weeks, or even months. The exception are certain dream fragments which will be discussed later as "endoscopic dreams." Usually, they are never entirely absent during remission. It remains a moot question whether this dreamlessness during schizophrenic remission constitutes no more than a dissociation from dreams, a repression of dreams, or whether this disappearance indicates a genuine psychic relaxation. Once remission begins to consolidate, there first appear quite sporadic, brief dream pictures. They repeat some scene of the previous day—devoid of all complexes—or, they represent some concrete and harmless subject without alteration. The experience in the dream is pleasant, realistic, and undisturbed. It seems as if the psyche stretches tentative feelers towards the realities of everyday life. Aside from this easily recognizable tendency, analysis of these dream pictures indicates that symbolic significance from the unconscious—which may be assumed behind even such pure day remnants—plays no demonstrable part. This impossibility to relate the manifest dream to a deeper source is just as inconclusive as the earlier dreamlessness in proving an actual quieting and ordering of the unconscious levels of personality. Perhaps no more than a particularly energetic repression—always concomitant with a schizophrenic remission—can be held responsible for this dream phenomena.

In the majority of remissions no further normalization of the dream-life occurs, but after a longer or shorter period of time massive dreams from the deepest layers of the unconscious suddenly break through again. We had this experience with nine spontaneous remissions, but also, and in the same manner after 45 sleeping cures and 18 insulin shock treatments, even though the precipitated remission appeared to be close to a recovery. However, the demeanor of the dreams proved to us that these improvements were not far reaching restitution but that the schizophrenic chaos continued to smolder under a relatively thin psychic layer. In every one of these 72 cases a new schizophrenic episode occurred 2 days to 3 weeks after first appearance of these impulse-laden dreams. Only in the most favorable cases—with 6 of our patients—did the day remnants slowly acquire the typical dream coloration without occurrence of an unusual breakdown of the censor function. Unconscious strivings on the one hand and the influence of the dream censor on the other reshaped the day remnants in a manner hardly distinguishable from normal dreams. We have come to consider a schizophrenic remission reliable and durable only when all dreams reach this particular stage of development, no matter how completely the waking personality had meanwhile simulated a good restitution. . . .

A pronounced paucity of dreams is again characteristic of the advanced types of schizophrenic feeblemindedness (Verblödung), in which the active psychic processes have diminished and the strong tensions between individual psychic systems have largely disappeared. It is particularly difficult, of course, to obtain any reliable information from these patients. . . .

We have observed two more, contrasting dream types which are exclusive to schizophrenia. The patients guard these dreams with particular care, because . . . communication of these secrets invariably results in an intensified onslaught of their illness. . . . The 23 examples in this category of dreams could only be obtained from patients with whom we had lived in a household community for many years. These patients are severe catatonics and hebephrenics who had been able to preserve a certain well ordered facade. The first group of these dreams, which occur during the course of acute episodes, may be described as dream-flight, in analogy to 'flight of thought.' The dream scenes, which are almost exclusively concerned with commonplace, concrete things, fly past the dream consciousness with an unpleasant, sinister rapidity.

The scenes are faint, fleeting, and of indistinct outline. For example, one patient, reported 20 picture scenes—and many more which she could not recall—that dashed through her dream within one-half second. In those dreams we observe the patient's repeatedly fruitless attempt to reach reality, to hold on to it, in order to prevent further deterioration into an objectless autism. They attach themselves to these realistic ideational remnants, they attempt to fall into a very shallow sleep, all out of fear to lose reality altogether should they sink into a deeper sleep.

The other group of dreams is essentially of rather banal character. One female patient, dreamt she is lying in the hospital. A nurse comes in and straightens the patient's pillow. This scares her so boundlessly that she awakes with trembling and screams for help. The point in this case is that she was neither frightened by the content, nor by the relevant latent thoughts with which she was quite familiar from her earlier analytic sessions. The patient was frightened because the dream scene had appeared with long forgotten realism and feeling tone, while for many years past she had lived in severe autism which made the outside world appear as in a shadow. . . . This type of patient cannot bear the attempt of their affective tendencies to reestablish a deeper object relationship in the dream. . . .

In the dreams by our schizophrenics so far investigated the motives, dream instigator, are all derived from the realm of the id. In more or less disguised form the wishes of the id find hallucinatory satisfaction in the dream by use of objects in the external world, or—in narcissistic dreams—in the own person. Freud's *Dream Interpretation* deals almost exclusively with this type of dream. Only in a very few cases does Freud designate the ego tendencies as instigators of dreams. As a characteristic example he mentions the punishment dreams, in which the ego's wish for punishment instigates and shapes the dream. . . .

In the case of schizophrenics we repeatedly encountered dreams which can neither be classed with *Freud's* wishfulfillment dreams, nor with the simple scenic presentations of awakening or falling asleep, in the sense of *Silberer*. These dreams occurred almost regularly with intelligent catatonics, and somewhat less frequently with hebephrenics, as long as the patient's dementia had not reached the point of a completely flat affect. These dreams are an astonishingly acute presentation of the past, present and anticipated condition of the patient's ego. We made the curious observation that the capacity of the human ego to split and to observe itself is much more pronounced in the dreams of these patients, and that this "notice-taking" faculty is by far more acute than in the waking condition; this is strange indeed, since the usual characteristic of the dream condition is a reduction of the ego function and the incidence of the censor.

We want to call these dreams, which evidence an intense, inner self-observation, *"endoscopic* dreams". . . . These endoscopic dreams are not only of considerable theoretical interest, but they may gain great practical prognostic significance. Such endoscopic dreams are by no means confined to schizophrenics. We know of neurotics who can represent the entire structure of their neurosis in dreams.

From our own examples we offer the case of a young man, just before his final examinations, who intended to emigrate to America. He dreams, he is already on his voyage to America; but the ship springs a leak, sinks, and he feels the water close above him. He begins to lose consciousness in the dream. He can still see a few air bubbles rise from his mouth, and he knows that he has died. Here ends the dream, but it left a profound impression upon him. Four weeks later the patient had to be hospitalized because of a catatonic twilight condition.

> The following dreams are even more explicit: A female patient observes an eclipse of the sun in her dream. There was a weak twilight everywhere. Next she saw herself in the midst of a crowded street. A great number of people and cars were going backwards and towards her. Every time they came quite close to her, they avoided her and rushed past the patient with ever increasing rapidity. She became dizzy and fainted. Suddenly she found herself in a homely-peasant room in which a petroleum lamp spread a warm light. Fourteen days after this impressive dream the patient went through a mild, two day long, schizophrenic disorientation. However, she was able to pull herself together, and became possibly somewhat more relaxed, affectively, than she had been before, just as she had anticipated in her dream. Four years later

> the same female patient dreamt for several nights in a row, that a little black cat was swimming in a large lake. The cat struggled to keep from drowning, but sank nonetheless. The patient knew very well that the cat was herself. One day, this dream series stopped, and shortly thereafter the patient sank into a catatonia which lasted several weeks. Another patient, who reported this dream as the most impressive one of her whole life, dreamt that she was slowly sinking to the bottom of the ocean. She fell in the middle of a large heap of grinning skulls. Her body disintegrated, and suddenly she knew that she had turned into one of these death-heads. For hours and hours, bubbles would rise out of this skull. Meanwhile she knew long in advance that she would be dead when the last bubble was rising. Time moved with painful slowness in the dream, until finally the last bubble had risen and the dreamer died. One month after this dream the patient entered into a schrizphrenia for which there is no hope of any remmission. . . .

During the quiet phases the endoscopic dream reflect above all an inferior rapport with the surroundings. This is frequently the case even if a practically complete remission has set in. We have never been able to glean from such dreams during remission periods whether the improvement was spontaneous or a consequence of sleeping cure or of insulin shock therapy. We find here a parallel to the defective regeneration of the dream structuring out of the unconscious, which as mentioned previously lags considerably behind the superficial redintegration of waking life. . . .

The numerous pure, or almost pure, endoscopic presentations, which play such a large role among the dreams by schizophrenics, force us to look for a dream instigator other than the unsatisfied impulses of the id and the impulses of the ego. We must infer a self-inspecting, critical faculty which stands over and above the id and the ego. A dream source of this sort, however, can no longer be characterized as an impulse, unless a proponent of Freud's death-impulse hypothesis would maintain that the Thanatos impulses find their realization in just these phenomena.

THE DREAMS OF ORGANIC PSYCHOTICS

As we make a comparative inspection of the dreams by organic psychotics we at first note several similarities. Very conspicuous is the pronounced reduction in dream life with progressing illness. Pronounced demented organics are incapable of reporting any dreams for weeks and months. We did not receive the impression that this is due to a reduced recall faculty, but rather constitutes an actual diminution of the dream activity. We have repeatedly questioned the patients immediately upon waking, or we have wakened them for purposes of interrogation. On the other hand, especially paralytics dream much more frequently and intensively at the beginning of their illness than before.

Organic and schizophrenic patients further more have frequent endoscopic dreams in common. They are especially frequent with paralytics. We have yet to find one of these patients who does not repeatedly dream of his bodily defects in more or less disguised form. We even found such dreams of critical self-observation in manic cases in whom no realization of their illness was suspected, and with dementia patients who seem to have long lost any respective judgment capacity.

For instance, a severely demented euphoric paralytic reported the following impressive dream:

> "I was sick, something on my left foot which was pussy. I heard someone say that it was questionable that improvement was possible. I would have to die soon, the festering had already spread to the brain."—A very cheerful paralytic, brimming over with a feeling of well-being, dreamt after a slight improvement from a malaria cure: "I was in a slaughter house. There I was cut up by the butcher. I was cut into many slabs of meat, from head to foot. It didn't hurt. I only thought: if this goes on much longer it won't turn out so well. Then came a flood — this was at the Klosbach street in Zurich — and everything was torn asunder. Then, someone else came up and said: Well, now we'll have to piece you together again. Meanwhile he had a children's kite in his hand. He took the meat-pieces and placed them on both sides of the kite paper. I didn't feel so good about that. I remarked: that won't be durable, if somebody knocks against it, the whole business

> will fall apart again." The patient's doubt in the success of his malaria cure, and his insight into his condition can hardly be expressed more clearly.

Much more impressive, however, than the similarities between the organic's and the schizophrenic's dream pictures are the differences between the two groups. In comparison to the dream phenomena of organic dementia, the specific schizophrenic dream characteristics gain in plasticity. It is true that we find a certain reduction in dream censorship in the dreams of organic psychotics, especially with paralytics. We possess 8 dream series by different patients, where this influence of the organic psychosis is clearly indicated. However, we must content ourselves with only a few examples. For example, a patient with traumatic Korsakow, who formerly had a highly developed moral sensibility, dreamt as follows: he and his little daughter are sitting in a restaurant. Suddenly the daughter has become a grown girl, surrounded by admiring men. But she is only in love with the dreamer. They drink champagne, and later retire with erotic intentions to a *chambre separée*. Next the same patient dreams that he is on a hunt. Unexpectedly, his hunting companions turn upon him, chase him, and aim their rifles at him. Finally he tires from his flight and has to lie down. Then his companions begin to laugh, explain they only wanted to frighten him, and commence to masturbate each other.

> An alcoholic Korsakow, a former pastor, dreamt exclusively coarse sexual scenes concerning his wife, the female attendants, and even his daughters. After considerable improvement of his symptoms, these erotic intentions were garbed in symbols, inaccessible to his consciousness. After extensive recuperation he dreamt the following dream which he had repeatedly dreamt since adolescence. Together with an elderly lady he ascends the stairway of a palace. He is to be crowned as duke. Joyfully they ascend with increasing speed. Suddenly he flies off the ground and hovers over the palace. Suddenly a large flame shoots out of the building, he falls to the ground, and a devil with large horns pierces him with a spear. Each time the patient awakens from this dream in terror. During his illness the dream appeared in somewhat different form: the dreamer is king; he sits on his throne, and his mother is next to him.

> Suddenly she changes into his Hungarian mistress. In spite of the presence of the entire court he feels no shame in having intercourse with the girl. At that point the guards call the alarm, the giant Goliath enters and wants to kill the dreamer with his club. The dreamer sets his hounds to the intruder, and they jump at his throat. The blood shoots out of the giant's throat in a mighty stream, and he soon dies. . . .

Of these patients we know of many similar dreams from before their psychosis, though reduced in megalomanic erotic character.

Seniles and arteriosclerotics prefer to make drastic dream presentations of anal impulse tendencies.

> A depressive arteriosclerotic feels in his dream that his feet are tied, and he is pulled into the toilet with a rope. Then, surrounded by tremendous masses of feces, he was flushed through the entire sewer system of the city. Another melancholic arteriosclerotic finds himself in his dream in a gold mine. Gold drops fall constantly into his mouth; he can digest them but they produce an unusual amount of feces. He lets his stool drop under him, until finally the entire mine is filled with his excrement. He enjoys this transformation of the gold quite a bit. A paralytic finds himself in his dream at an animal show of the Knie circus. There were many animals: wolves, monkeys, crocodiles, and snakes. He got an appetite for the wild animals, and, in fact, devoured the entire menagerie. But after a while he had to vomit everything up again. The crocodiles and snakes caused him an interminable diarrhea. . . .

These examples, however, are by far the most outspoken, weakly censored dreams of our entire collection of dreams by organic psychotics. And even in these cases we observe that the destruction of the dream censor in comparison to the manifest illness occurs neither as early nor as intensively as under the influence of a schizophrenic psychosis. The dreams after a severe organic process and the dreams from healthy periods of the same patient are not as different as in the case of schizophrenia. Also, we hardly ever found the undisguised, reckless, chaotic destructiveness as in the dreams of severe schizophrenics. The majority of all dreams by organic psychotics, more than 70% of our cases, are in form and content much more like the brief, simple, and harmless wishfulfillment—and anxiety dreams of small children. Frequently, the organic psychotic dreams himself back to his parental home where he appears as a small child.

> A few typical examples of senile dreams are as follows: "Last night, I saw my mother in my dreams. She was very kind to me, and we promised each other never to part."—"I was a little boy again, and I saw a brook with beautiful trouts. They were easy to catch. My mother was very much pleased about this."—A demented paralytic had a single dream in the course of many months. He heard his mother say: "Ernest, have confidence, everything will be all right."

If the dementia progresses, the dreams of organic psychotics acquire all the characteristics of feebleminded dreams. The content is practically always indifferent; it deals with trifles, a pleasant thought, brief conversations, usually simple pictures without sequence or plot. The most conspicuous feature is the failure of secondary elaboration of the dream-material, whose function it is to place the various elements in the dream into a more or less sensible connection. Dreams in which the heterogenous elements are simply placed side by side, are not rare. The dreamer himself considers this peculiarity as neither absurd nor unusual. A severe paralytic, for example, experiences in one and the same dream at first how someone makes him a gift of a beautiful car and then without transition or connection there appears next to this the picture of a beautiful mountain landscape. Equally unconnected he sees at the same time a scene in which a pig is being slaughtered on his former farmyard.

The consistent and essential difference between all dreams by organic psychotics and those by schizophrenics is this: with schizophrenics the entire weight of the dream is placed more and more upon the immediate impulse activity and gratification. The entire environment and scenery are usually treated as something vague and unimportant. Concrete details are largely neglected. Organics, on the other hand, place careful emphasis upon details, even in dreams of considerable impulse-gratification. This extends to the smallest details of their own person, of included persons, and of the entire object-world, which is perceived with considerable affect.

> We quote the example of a 42 year old paralytic: "I looked out of the middle window of my apartment and overlooked the entire length of the street. A large steer came jumping into the street. In the middle of the street his head was cut off. Even when the steer first appeared I had a strong need to cough. When the steer fell over dead, I noticed that it was my own phlegm which got stuck in my throat. I coughed once more, and the steer was removed from the street. I could breathe again freely."

We notice from these dreams how the fundamental difference between schizophrenic autism and organic demented egocentricity can be observed in the deepest dream life, in fact, finds its most drastic expression there. . . .

Chapter V

METHODS OF DREAM ANALYSIS

SECTION A

No. 15

THE ORGANIC SYMPTOM IN THE DREAM* (GLOBUS HYSTERICUS)

Emil Gutheil

Freud's fundamental work "Dream Interpretation" was a milestone in the development of the modern psychology. . . .

Freud and his disciples put together stone upon stone, until the formerly hazy art of dream interpretation became a stately structure in the science of dreams. Later, however, according to Freud's own statements, the research on dreams came to a standstill. . . .

Freud is right as far as his permanent co-workers, the orthodox analysts, are concerned. Unfortunately, however, he failed to pay the necessary attention to the progress in the dream interpretation as obtained by Stekel in the course of developing his "active method" of psychoanalysis. This progress is mainly due to the fact that the active analyst, without sacrificing the scientific basis of his work, makes himself independent of the patient's toilsome and lengthy associations. The advantage is incontestable inasmuch as when we consider the role that dream interpretation plays in psychoanalysis, it means *shortening of the duration of the analytic treatment.*

May I be permitted in the following to draw the outline of Stekel's active dream interpretation and refer at the same time to the topic of this article: The organic symptom in the dream.

A woman patient, aged forty-two, married, suffering from nervous larynx symptoms, dreams:

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*Abridged from the *Psychoanalytic Review, 22*:432-438, 1935. Reprinted by permission of the author and The Williams and Wilkins Co.

"I am in a dance hall. I wear a black silk mourning dress. A man asks me to marry him. Then another man asks me the same. Finally my future son-in-law wishes me to marry him. I say: 'Why, you could be my son!' To which he replies: 'All the better!' . . .

"Then I see a horse which is casting its skin repeatedly. Somebody says: 'That is very good for the older it is the more suitable for horse races.' While talking, I notice that the horse has a lasso around its neck which is tightened by somebody whom I don't see. I notice the eyes of the horse popping out, as if in panic, whereupon I scream and awake with heart palpitation and a strong coughing attack. . . ."

We have to deal here with a so-called "irritative-dream" (Koerper-Reiztraum). We may suppose—by experience—that it was the accumulated mucus in the patient's throat that caused her dyspnea, portrayed in the dream by the scene of the choked horse. The patient's most disturbing symptom which made her seek treatment was that a mucus irritation resting in her throat forced her to expectorate. In the dream the patient's symptom appears in a disguised form.

We do not learn anything about the "latent dream content" yet. In the strangulation scene we see a part of the "dream work," *i.e.,* the process of "symbolization": The choked horse, whose feelings the dreamer experiences so clearly is—according to the above—a picture of her own self. As we know, the cause of symbolization is the fact that for various reasons the events to be expressed are painful to the dreamer. Their expression takes place after symbolization.

In order to interpret a dream correctly, we must—with Stekel—first "simplify" the content of the dream and reduce it until we reduce it to its elemental significance. Thus the above depicted dream may be divided into two parts, which we may call:

(A) The proposal of marriage.

(B) The choked horse.

In part (A) the dreamer is the main person, in part (B) the horse; but—as we stated before—both dream figures are undoubtedly identical.

In the first part several men propose to the—married!—patient. A nonsense?— But there is no nonsense in a dream. According to Stekel the apparent nonsense is the carrier of the main accent in the dream plot.

The patient who is in a mourning dress while in a dance hall sees herself undoubtedly as a widow. (In looking over the other dreams of the patient her death-wish against her husband becomes still more evident.) We may reason this painful thought of the dreamer in the following way:

"I wish my husband to die, in order to submerge in Life (dance hall) again and to obtain new, better, marital chances. . . ."

Indeed, according to our inquiry, the patient's marriage is to be called unhappy; the sexual relations have never been satisfactory to our patient. It is also of importance to know that the patient's husband is eight years younger than she.

The three men who are proposing to the patient in her dream do not enter the show with an equal distinctness. While the picture of the first two men quickly disappears, the figure of the patient's son-in-law keeps its full exactness until the end. The "three men" as dream pictures answer to the principle: Performing the General by the Special. Instead of saying "three men," we may refer with equal right to the more general term "Men." We then read the sentence: "Men are proposing to me."

We should also take into consideration the change of persons. Again we notice a part of the "dream work" which resembles highly the color printing. As the three single colors in the three-colors-print, the three single men in the dream portray the same figure in course of a growing distinctness. More and more clearly the proposer in the dream becomes the patient's son-in-law. (Rule: Behind a granted "Multiplicity" a tabooed "Unity.")

However, when a new alliance made possible by the death of the patient's husband has been rejected by the patient's moral, this reaction is all the more intensified when, in addition to that, the new suitor is the future husband of the patient's daughter.

The second tabooed wish expressed in this dream (as its "latent content") is the patient's sexual desire with reference to her daughter's fiance. We must theorize that a subconscious jealousy between mother and daughter exists. If this be the case, we should examine whether or not the mother, being jealous of her daughter, wishes her to die. We mark the relation: Mother-daughter for a closer discussion.

We let the patient associate to this point at will, and learn that the mother really wishes her daughter to die and therefore is charged with a deep feeling of guilt. As we learn by exploration, the patient has had her daughter to die in her dreams repeatedly. Her conscious reaction is one of a mother who is compensating her feeling of guilt by an attitude of "overprotection" for her daughter. Contours of the patient's subconscious life plane become obvious: In order to make a better choice in matters of love, she removes both obstacles: husband and daughter, out of her way.

We proceed now to a discussion of the Mother-son relation. Here too, we first grant the patient full freedom of association and omit no detail. We succeed in deriving the information that the patient adores her son and suffers because the young man does not associate enough with women. (He has a "mother-fixation.") As an enlightened mother she had already thought of introducing to him a girl for sexual purposes, in order to "strengthen his virility." Our supposition thus proves to be correct; there is a real mutual fixation between the mother and the son.

At this point, however, the thought is intruding upon us, whether the patient did not at all times take a liking to young men, since she herself had married a man eight years younger than herself. In order to understand the problem of her marital choice it is necessary to examine the so-called "Electra complex," *i.e.,* the patient's relationship towards her father, for, according to Freud, the daughter-father attitude is a decisive factor in the woman's general attitude towards men.

The patient reports that she has clung passionately to her father, while she adopted a rather cool attitude towards her mother. She has known her mother as a sick, always coughing woman. The mother died from tuberculosis when our patient was nineteen years old. The patient took care of her mother, giving herself up completely to her. We think here of the throat symptoms of our patient; which fact leads us to suspect whether the patient herself fears the possibility of contracting laryngeal tuberculosis, and then, whether in her symptoms there is any identification with her mother's disease, based, of course, on self-punishment (poena talionis).

In the course of the discussion the patient becomes conscious and makes us aware of the fact that in attending her ill mother she often wished her mother to cease suffering and to die. After her mother's death she thought—though only in a fleeting way—that she may also die from tuberculosis, perhaps of the tuberculosis of the throat, as God's punishment for her sinful thoughts.

We could have supposed the effectiveness of the talion, if the symptom had appeared a short time after the mother's death. We could not, however, prove this in our case. At the time of the analytical treatment the symptoms lasted hardly a year. They appeared three months after the engagement of her daughter.

Summarizing we may say that our patient's father-fixation was later changed into a son-fixation, owing to a known psychic mechanism. The son-in-law as a son image offered an attainable goal for her repressed desires and renewed the patient's old conflicts.

Now we proceed to the discussion of the part (B) of the dream which we have entitled: "the choked horse." As said before, the horse symbolizes the dreamer herself. We may say more precisely: the dreamer's animal self, and think of Centaurs, the Sphinx, and other symbols of the discordant human nature. The horse is casting its skin in the dream. An inquiry reveals that a short time ago the patient submitted to a skin-peeling cure with violet rays for cosmetic reasons.

The part (A) as well as (B) is dealing with the age-problem. The repetition of a motive proves its importance (Stekel). In the part (B) the dreamer advocates the peculiar idea that the older one is, the more valuable he becomes (". . . the older it is, the more suitable for horse races . . ."). The "wish is the father of this idea." While testing her physical values and lulling herself into all kinds of selfish plans she gets struck by her Lord's punishment (". . . somebody whom I don't see . . ."). She sees in the dream, in the picture of the choked horse, her mother dying under dyspnea and, besides, she sees in this picture also the ghostly image of her own death as a punishment for her death wishes against her relatives. In experiencing this, she becomes panicky, tears to pieces the spun yarn of her dream and saves herself into reality by awakening suddenly.

Summarizing we may say: The dream has probably come to existence through a physical irritation (mucus in the throat).

According to my research, dreams come to existence in the state of awakening, in this hybrid-like state of consciousness in which the "unconscious" (characteristic for the sleep) is slightly flaring up to the "conscious" (characteristic for being awake). Hence, according to my opinion, we must suppose that the physical irritation has led to awakening and the dream has occurred within the awakening process.

As we know, the dream in its original state, consists of clue-like entangled "thought-feelings" in which there is no succession of events, but only coincidence; it is the recollection of the dreamed content that first enables one to arrange the dream according to the laws of logic, a process in which (according to Freud) various resistances of recollection still need to be overcome. Therefore, both parts of the dream are to be considered as a psychological unity.

The dream succeeding the physical irritation is an independent formation containing the patient's specific conflicts as the "latent content." The patient wishes her husband and her daughter to die in order to compensate for her missed sexual opportunities in life. However, as a morally firm person, she represses these wishes, but at the same time she is afraid of God's punishment. In her symptom, which means to her equally recollection and warning she anticipates this punishment by self-punishment.

In the discussed dream we find several instructive points. First, concerning the technique of interpretation: We attempted to get as much as possible out of the dream's symbolic capsule without the patient's aid. According to our intention, only a few details had to be clarified by the patient's information. It is my opinion that the dream interpretation will remain contestable as long as the analyst will not manage to grasp at least the skeleton of the dream independently of the patient. Associations produced with reference to the single parts of the dream have an equally questionable value as the dream symbols. One could also interpret them as if they were symbols (S. Loewy). A reliable test that would enable us to discern which one of the patient's many reports about his dream is essential and which may be neglected, does not exist. It is the psychological insight—and the intuition (!) of the analyst which must decide here. It is my conviction that dream interpretation will assert itself successfully as a science worth teaching and studying, only after we have become so independent in our technique of interpretation as to be able to detach ourselves from the patient's associations (up to the little information about dealing with persons and experiences). Only then shall we interpret, undoubtedly less, but all the more reliably. The abundance of single interpretations and their depth will depend only upon the interpreter's ingenuity and intuition. They will distinguish the real artist among the dream interpreters and will give testimony of those qualities which are already beyond teaching and study.

By means of the active analytic dream interpretation, we gained valuable clues in the understanding of the reported case and the symptom. We are able to recognize the patient's "globus-symptom" as a sign of the patient's identification with a suffocating person. We found the self-punishment as the cause of this identification. Thus we obtained a reliable means for a causally oriented therapy of the neurotic symptom.

The connections described here are typical. Dreams containing a symptom usually also contain the pathogenic situation, though in the majority of cases—as in our case—in a symbolic disguise.

No. 16

TECHNIQUE OF DREAM ANALYSIS*

Otto Kant

Since Freud first called the dream "the royal road" into the unconscious, dream analysis has become a widely used method in psychotherapy. Also those psychiatrists who do not profess to be members of any one of the analytical schools, but who employ psychotherapy on an eclectic basis, have come to favor the use of dream analysis as one of the most promising of analytical procedures.

. . . the practical application of dream analysis is still far from being on a sound scientific basis, and the divergent views of the various analytical schools are evidence of the great importance of

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the subjective factors involved in this method. . . . The influence of the dream analyst . . . may concern not only the interpretation but even the formation of the dream material. Furthermore, the arbitrariness of interpretation is increased by the inclination of some dream analysts to make frequent use of standard interpretations of various symbols. The resulting analysis, therefore, often resembles more the rationalizations of the analyst than the actual meaning of the dream. . . .

It is the purpose of this study to demonstrate a certain procedure of dream analysis which attempts to avoid dogmatic prejudice and arbitrariness. Our only presupposition is that dream experiences represent mental activity on a "lower" and therefore more concrete level; *e.g.,* instead of the prevalence of abstract thought, the experiences in dreams are mostly retranslated into the corresponding images. We leave it to the dream itself to indicate whether it expresses a wish fulfillment or other tendencies such as fear, introspection, attempts at problem solution, etc. Because of the complexity of the personality-structure it may be expected that the various levels of life experience, of which sex is one important aspect, will be represented in the dream material. Needless to say, this paper is not offered as a substitute for the intensive study of the theories of dreams and of dream mechanisms. It is taken for granted that this knowledge has already been acquired by the reader.

Following Jung's early statement, it is our conviction that no dream analysis ought to be undertaken without the analyst's having acquired an extensive knowledge of the dreamer's conscious personality and previous experiences. As will be demonstrated later, every dream image includes so much ambiguousness and is so complex that it can be clearly focussed only if it is projected on a well-known background of the conscious personality.

In starting out on a dream analysis, it is basically important for the analyst to assume the following attitude: The dream should be *interpreted* as little as possible, it should be *read.* The concept of interpretation involves the active participation of the searching mind which approaches the dream and the free associations offered with recall of experiences and logical activity. It is, however, desirable that the dream analyst completely discard his own intellectual activity and merely *accept* those experiences which the dream itself has to offer. It may be recalled that the language of the dream is not that used by the conscious mind in our civilization. As opposed to the abstract language of the latter, the dreaming mind turns to a more primitive level of expression. Whoever wants to understand the meaning of the dream would have to understand its language. This, however, is something for which we have been badly prepared by our intellectual training in spite of all our acquired knowledge of the dream mechanisms. The more logical-abstract training we have received, the farther away we have been carried from understanding the picturesque concretism of the dream language. Nevertheless, some knowledge of it is common to all of us because we are able to express ourselves in exactly the same way when sleep switches off our daytime consciousness. Our dreaming mind speaks the universal language of all dreams. Still when our daytime consciousness returns, we have again lost our knowledge and do not know what to make of the dream that is presented to us. The problem arises how the mind that is fully awake may learn to abolish the daytime attitude and to adapt itself to the other level. How this is actually accomplished can best be demonstrated by comparing the desired attitude with a related one which is well known to most of us. Anybody who becomes absorbed in a lyrical poem reads it the way a dream ought to be read. The following verse by Rainer Maria Rilke appears particularly suited to exemplify the type of expressionistic lyric that is here referred to:

> Mirrors: at last to reveal in rhyme
> the life that you really live!
> You strange interstices of time,
>
> as full of holes as a sieve.
> Squandering the room you are left to keep,
> wide as forests when twilight broods . . .
>
> And the sixteen-pointed lustre's leap
> through your virginal solitudes!
> Sometimes you're full of portraiture:
> welcoming some to your last recesses,
>
> diverting others, shy and demure.
> But the fairest will always remain inside
> til through the cheeks you are holding presses
> Narcissus, released and clarified.

Anybody who approaches this verse—one might say wide-awake, with critically examining intellect—the way he would read a report of a scientific or industrial enterprise would take offense at nearly every word, surely every single sentence. He would be disgusted at the want of clearness and of completeness, and he would stress the lack of logical meaning in the whole product. The reaction is different in one who allows himself to be captivated by the beautiful words, and to experience without any active expectation the emergence of images of variaus intensities. All of these are held together by the same sentiment, diverse variations of this one experience: mirror. Only then, when all considerations of a physical or other conceptual type have been discarded and one devotes himself passively to the experience of this most unsubstantial structure which can be so rich in its reflection of life, do the words formed by the poet attain symbolic meaning and significance. Furthermore, the emerging images realize the experience of the mirror more essentially than could have been done by any sagacious considerations and deductions. Incidentally, it does not matter that the associations evoked by the images of the poem are different ones from individual to individual because of the variation of cultural backgrounds and past experiences. Although expressed in a different language, the basic resonance—presupposing that any resonance at all exists—will be the same: experience of a mirror.

It is the withdrawal of the purely rational attitude which characterizes the one who is captivated by a lyrical poem as it *should* characterize the attitude of the one who is attempting to read a dream. Only by this means is it possible to enter the world of poems and dreams which remains a multitude of logically unconnected colorful pictures. The individual phenomena are not so stable and delimited from each other as those experienced in the light of day. There is a lack of steadiness also. Everything flows and passes by; there is a mysterious ambiguity about everything. A single image usually refers to multiple sources instead of one single motive. What otherwise is separated here flows together. Instead of something actually intended, frequently something only distantly related to it is advanced. If one, however, refuses to be perplexed by the chameleon-like nature of the dream manifestations, and is prepared to *perceive* only, one may realize the harmony in the apparent confusion. One objection to the demonstrated point of view may be anticipated. Some readers would state that a poem like the one above does not evoke any response in them but that of negation. This type of personality, however, will also be unable to descend to the level of the dream language and to accept what the dream actually offers instead of consciously searching for a meaning which cannot be grasped in a foreign tongue. He will therefore not fulfill what in our conviction is the basic requirement of a sound dream analysis: to *read* the dream instead of *interpreting* it.

It is essential first to perceive the dream which one wants to analyze with relaxed attention. As somebody once remarked with regard to neurotic manifestations in general, it is better to behold something through the half-closed lids as one does in the dusk in order to see more clearly. This, I should think, holds true particularly for the perception of dream images, emerging from the dusk of the subconscious. One must float along with the stream of images passing by, quite contemplatively, and without the sterile ambition immediately to rationalize the vision. Patience has to be acquired, enabling us to wait passively and to submit to the inspirations which emerge spontaneously from the corresponding levels of our own mind and to accept everything. While some pictures then advance and others recede, we gradually obtain the essential substance of the multitude of motion and formation which the dream presents. Here we can recognize the regulating principle of our own subconscious. Its productivity proves itself in selecting as well as in omitting—as it is the mark of a good novel to illuminate only those features in the life of its hero which are somehow essential and of importance for the story as a whole.

It is important to go over the dream (which we should have in writing before us) time and again. It is like trying to play a new passage on the piano. First we have to get accustomed to the notes and the sound pictures. The more frequently this is repeated, the more new harmonies and relations are discovered, the same as new meanings are found on re-reading a book which we believed we had already made completely our own. In other words, our first task is to become thoroughly acquainted with the dream which we intend to analyze.

The next step is to have the dream, which as yet is far from being a finished product, completed by the dreamer himself. While being exposed to the write-up of the dream we usually feel the same slight uneasiness which we experience when reading a book from which some pages are missing. It is therefore necessary to regain the missing parts of the dream in order to have a complete product with which to start. Many lines in the pictures offered are not yet drawn out and some colors are missing. Parts of the dream may be quite pale and vague. The better we have already learned to behold the dream on the picture-book level, the better we can actually visualize which parts lack completeness. We are not satisfied with the dreamer's vague description of a dream figure which is only dimly recognized. We want a distinct picture of every person as well as of the inanimate surroundings. Needless to say, in completing the dream according to our request, the dreamer frequently offers free associations, which, although not actually part of the dream, form the missing link between the original trend and its disguised expression in the dream picture.

When thus completed, the dream with its periphery of related pictures, gained by the supplementing associations of the dreamer, will always give us a certain impression of *atmosphere* and of *topic.* If we do not look for details at first sight but let ourselves be captivated by the whole composition, there will usually be no doubt whether we are confronted with a more dramatic or more lyrical product, whether the expression is a defying or affirmative one, whether it offers a positive solution or a doubt or a question mark. It also will be already indicated which topic of life and which levels of the personality are involved.

In a number of dreams of simple structure the images are so expressive and transparent that they force their meaning upon us, *i.e.,* they can immediately be read. In others we will have to wait for more material from the free associations of the dreamer which will connect the separate parts of the picture into a meaningful whole. Our picture-book attitude will help us to select the starting-point for free associations. Those images will impress us as particularly striking which seem to contrast either other parts of the whole dream picture or the dim vision of the conscious personality of the dreamer which is always vaguely present in the background. The more the material is supplemented by free associations, the more new images will emerge if we maintain the picture-book attitude. Practically it will not always be necessary to continue working through the material until the whole dream in all its details can be read; occasionally the free association starting off from a striking point of the dream will take the lead and offer so much revealing material that there is no need of further pursuit of the original dream content. In our opinion it is furthermore often superfluous and much too time-consuming to enter into every detail of the dream picture. If we do we might become endangered by our attempts to relate so many mosaic stones to each other that we miss the view of the whole picture. Just as some paintings impress us by their general composition, while others are striking because of the minuteness with which every detail is endowed, the significance of the dream varies in individual instances. We leave it to the dream itself to tell us whether we should be more interested in all of its details or in its general structure. Passivity on our side is always the basic command because we are not trying ot interpret but to read the dream.

The following dream analysis may demonstrate what we have tried to point out so far.

The dreamer was being treated for psychogenic impotence. The material so far collected emphasized the ambivalence of the patient towards the sex problem. It was evident from previous discussions that he strictly discriminated between "sensual" and "spiritual" love. This patient, who formerly had had successful sexual relations, had asked for treatment because of inability to establish relations with his wife, to whom he had been married for several months.

THE DREAM

"I took a stroll through a rose garden; it was a beautiful morning. Although the rose bushes were in full bloom, the ground was densely covered with rose petals. While walking I shuffled through the rose petals like children often do through dry leaves."

Since the scenery definitely contrasted with the patient's condition at the time, it was taken as a starting-point to supplement the dream. The analyst's questions are put in parentheses.

(What about the rose garden?) "I am thinking of King Laurin's rose garden in the fairy-tale. It was somehow beautiful, making you feel happy." (How was that about Laurin?) "I don't recall it exactly myself. It was something about a prince who rescued a princess who was held by Laurin, King of the Dwarfs. As far as I recall he rides into the garden from a gate in the hedge and gets the princess." (What was particularly striking?) "That the roses were all still in full bloom although the ground was covered with rose petals. These were also all still quite fresh, and one did not observe that the roses on the bushes were withered."

So far we have the dream and the associations with which the dreamer has supplemented it. In this dream it impresses us indeed as most remarkable that the ground is covered with fresh rose petals so that one would assume that the roses on the bushes would be withered and without petals. This, however, is not the case. While glancing at these contrasting images, we also dimly visualize in the background of our consciousness the actual situation of the dreamer. There is something in the atmosphere of the dream which tends to establish some connection between these two spheres: the dream and the situation of the dreamer.

Instead of attempting to grasp the melody by trying out various combinations of notes, we let our fingers—figuratively speaking—wander playfully. We then wait until some chords compel us to listen. The following associations may wander through our mind: rose garden . . . petals on the ground . . . plucking of flowers . . . beautiful, making you feel happy . . . to free the princess . . . sleeping beauty . . . garden of love . . . invading through the hedge. . . .

The whole atmosphere is so striking that there can be no doubt about the topic of this dream, which evokes many associations of similar fairy-tales: the freeing of the princess, who is being held behind a dense hedge. At the same time we are aware of the surprising fact that the dreamer, who suffers intensely from his sexual difficulties, speaks of this dream as being particularly beautiful and gladdening. Thus far, by merely listening to the harmony of the various tones we have perceived the general topic of the dream—the man's winning of the woman. There also can be no doubt as to how this theme is elaborated on. The dream is "beautiful and gladdening," the patient takes a stroll on a "marvellous morning," this same man who, because of his difficulty, has been anything but exuberant. This dream therefore definitely does not express resistance of a neurotic ambivalence toward Eros, but it reveals some knowledge of a positive solution of which the consciousness is not yet aware. This unawareness of the consciousness is confirmed by the surprise of the dreamer who wonders that the roses are still in bloom in spite of the profusion of petals on the ground. Incidentally this picture of the rose garden, which is in such contrast with the possibilities of reality, is so impressive that we expect to find here the solution of the problem.

Provided the dream has not yet spoken to us we start anew, aimlessly to behold the collection of images which have been offered so far: . . . rose petals . . . on the ground . . . shuffle through them . . . stripping off the petals . . . plucking the roses . . . winning the woman . . . like a boy in dry leaves . . . with your feet . . . to depreciate . . . to treat contemptuously . . . plucking the roses . . . leaves falling to the ground like dry leaves in autumn . . . which one steps on with one's feet . . . but the rose bushes in full bloom. . . .

The pictures emerging from this chain of associations are so expressive that we cannot help translating them into our abstract everyday language: even if the roses lose so many petals that the entire ground is covered with them, they still remain the same beautiful and gladdening rose bushes in bloom. And now we feel that we have already come close to the meaning of this dream.

A new chord will be formed by the addition of that knowledge about the patient which is always present in the periphery of our consciousness: . . . pluck the rose . . . leaves on the ground . . . shuffle with your feet . . . the sensual and the spiritual love . . . desecration through sexual approach . . . plucking of the rose . . . the lower life . . . pulling down to the lower level . . . with your feet. . . .

Glancing at the various series of images we have gone through, we recognize the complete melody: You are afraid of plucking the rose. Even if the rose, however, is stripped of her petals, and these are lying around on the ground where you think you tread them with your feet, the rose will continue to bloom in full beauty. The experience of love will not have suffered! One could not formulate the meaning of this dream more precisely than the dreamer himself did spontaneously after having given the first supplementing associations: "Sexual intercourse does not degrade the woman."

In this case the complete procedure of the dream analysis which was demonstrated was actually not carried out because the meaning of the dream forced itself upon the dreamer as an inspiration. However, whether the whole procedure of dream analysis has to be run through, or whether the meaning of the dream reveals itself after the first reading, the general attitude taken by both the analyst and the dreamer remains the same.

In our example the following reaction of the patient proved the importance of the dream. Although the patient himself had been able to read it he at first did not understand its subjective significance. He even appeared a little indignant, stating that the the dream revealed only something which was self-evident. He added that he himself had no objections to sexual relations and that a married woman naturally could not be degraded through intercourse. The writer, however, felt justified in telling the patient that he thought it highly improbable that this dream should only confirm the patient's own previous attitude, all the less as he then would not have had any reason for the elation and surprise which had accompanied the dream. The patient started protesting energetically, then suddenly hesitated. His expression became that of incredulous surprise. He said quite excitedly he had even yesterday questioned whether his wife and he could look each other straight in the face after having had sexual relations. The recollection of this thought had come to him this very moment.

As the reaction of this patient shows, the analysis of dreams is complicated by its double purpose: First, it helps the therapist to recognize the actual conflict situation or the particular life problem of the analysand. Secondly, it enables the patient to take conscious possession of his repressed conflicts against the power of his own resistance. While the experienced dream analyst will frequently read the meaning of his patient's dreams after a brief approach, the therapeutic task is thus not yet solved. Should the analyst be satisfied with telling the patient the meaning of his dreams he will experience a therapeutic disappointment. The patient may intellectually accept the analyst's opinion; his behavior, however, will soon prove that he has accepted it only on the intellectual level. His resistance is not really overcome, at the core his personality has not been convinced. The information will therefore have no lasting effect. For this reason the patient —at least in the ideal case—should be prompted far enough and the material worked through long enough that the patient volunteers the complete reading of the dream. Naturally this will take much more time and a much longer procedure than if the therapist alone were concerned. The patient's resistance is a great restraining factor which can be overcome only by sufficient patience on the part of the analyst. If he is persistent enough and the resistance "feels" that even further evasion will not achieve the purpose of escape, it will give in. One of the great advantages of dream analysis as an analytical method is that the patient himself is able to behold over and over again images which have emerged from his own subconscious mind and which have become objectivated by writing them down. He thereby acquires a weapon against his own resistance.

While the analyst should remain as passive as possible in the matter of reading the dream content, he naturally ought to take the lead in guiding the dreamer from vague and peripheral perception to the clear understanding of the nucleus of the dream. It has already been mentioned that the images themselves, by means of incompleteness, discrepancies, etc., lead the way to a fair degree. In addition, the reaction of the analysand is of supplementary importance. Certain expressive features, signs of uneasiness, inappropriate smiles, etc., will usually show when the center of the disturbance is being approached. The procedure of the analyst may actually suggest somebody playing the game "search for the button." The exclamations of the group are here replaced by the expressive reactions of the dreamer towards the penetration of the defense system built by his resistance. The behavior of the analysand, therefore, has to be carefully watched during the entire dream analysis.

Finally the question arises whether there are any sound criteria to prove the correctness of the reading of the dream. In our opinion every meaning emerging in the way of inspiration and without any searching attempts should be accepted as correct. It appears in the passive manner of free associations and therefore may be expected to have some close relation to the dream as well as to the underlying problem. Every meaning, furthermore, that becomes *evident* should be accepted provided that the evidence is shared by both parties. In those instances, however, in which the therapist suggests a meaning that is evident to him, special attention should be paid to the genuineness of the analysand's consent. One has never to forget that the resistance likes to make use of all kinds of masks; one of these is the apparent acceptance of the analyst's opinion which, however, is not permitted to become actually assimilated. A distinct feeling for the differences between genuine and nongenuine acceptance, therefore, is of basic importance. Particular proof of the correctness of a dream reading is the simultaneous appearance of the same associations in analyst and analysand. There are such indefinite possibilities of associations to the complex formation of a dream that mere coincidence can be completely excluded.

If in analyzing a dream any one of the three criteria mentioned is fulfilled, it is not too much to hope that the dream has not merely been interpreted but actually read.

No. 17

DIAGNOSING PERSONALITY BY THE ANALYSIS OF DREAMS*

CALVIN S. HALL

. . . Since the publication of Freud's monumental work, *Die Traumdeutung,* the interpretation of dreams as a diagnostic method for the analysis of personality has remained the exclusive property of psychoanalysis. The psychologist . . . has not concerned

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himself with dreams as psychological data. . . . Now that he [the psychologist] has widened his experimental horizons to include personality, character, and temperament, disregard of the dream can no longer be justified. For the dream possesses two characteristics which should make it highly eligible for serious and systematic investigation. It is a *personal document* and it is a *projection.* As a personal document it is more frank and intimate than a diary and as a projection it requires no ink-blots or pictures to bring it into existence. In our opinion the dream is more purely personal and more purely projected than any other material which the psychologist has available for the study of personality.

. . . *Die Traumdeutung* probably contains the richest fabric of theory to be found in any modern psychological treatise. Stekel's works on the interpreation of dreams leaves the reader with the feeling that the dream "tells all," that it is the portal into the most secret recesses of the inner personality. It cannot be denied that the psychoanalysts, in addition to their penchant for theorizing, make brilliant use of dream interpretation in the diagnosis and treatment of psychological disorders. For them, the dream is not only a datum about which to speculate; it is also a datum to be put to work. If practice verifies theory, what then is lacking?

The principal deficiency to be found in the psychoanalytic writings is that they fail to meet the standards of the scientific method. . . . Psychoanalysis has not recognized the importance of controls, of statistical treatment of its data, of validation. . . . It has not designed experiments for the purpose of checking its speculations. . . .

We propose, therefore, to make a scientific study of dreams for the purpose of establishing the interpretation of dreams as a valid method for diagnosing some facets of the personality which currently elude accurate description. We believe that through the analysis of dreams, important and significant information about the inner dynamics of the personality can be discovered. It is our hope that this belief may be corroborated by the application of those experimental procedures which have been used to validate other diagnostic tools.

METHOD

The method which has been employed in the present research project consists of the following steps: First, the dream series[1] are collected. College students in psychology classes served as subjects. . . . The first group of dream series was obtained from 71 students in a summer class in personality and adjustment which met daily. During the first ten minutes of the class period, they were asked to write down any dreams of the previous night which they could remember. Recording of dreams was done for 23 consecutive class days. . . . The dreams were collected each day by the instructor. A change in procedure was tried out with a second class of 75 students. Each student was given a notebook in which the dreams he had during the semester were to be recorded. The recording was to be done as soon as convenient after awakening. These dream diaries were collected in the middle of the semester and again near the end. Although this method worked out fairly well in terms of the number of dreams obtained, it is felt that the procedure of recording dreams in the classroom is more satisfactory because it is done under better controlled conditions. Following these two initial surveys, a standardized form for recording dreams was devised and printed. Dreams are entered on these forms either in the classroom or under the supervision of an instructor or graduate student.

The second step is the coding of the dreams. This is done to conceal the identity of the dreamer. . . . When subjects are informed that their identity will be kept secret they are more inclined to report dreams which might otherwise be suppressed. Even with this safeguard it is not likely that all recalled dreams will be recorded. Another reason for concealing the subject's identity is to prevent information about the dream which had been obtained from other sources from influencing the interpretation of his dream series. It is a principal objective of this investigation to determine the validity of dream series *per se* for the diagnosis of personality.[2] This is an important consideration. Suppose, for example, it is known to the dream interpreter from other sources that a student whose dreams he is analyzing has a conflict with regard to his religious beliefs. Will he not be tempted to find this conflict portrayed in the dream series? In such a case, the dreams will appear to yield a valid portrayal of a real conflict when in fact the evaluation is based upon other information. This error may be called the fallacy of pseudo-validity. It abounds in studies of personality and is especially prevalent in the writings of psychoanalysts. They are prone to project into dreams conflicts of whose existence they already possess knowledge. The fallacy of pseudo-validity can be avoided by analyzing the dreams of anonymous subjects.

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[1] The terms "series" and "cycle" refer to the dreams reported by an individual.

[2] The dream series contains not only the dreams but also the subject's attempts to explain the dreams.

The third step is the analysis and interpretation of the dream series. It is here that major difficulties are encountered. For a dream can be interpreted in diverse ways depending upon the particular theory of dreams which the interpreter adopts. A college girl dreams that she contracts infantile paralysis and has to quit school. The interpretation may be made that he girl wishes to be disabled in order to avoid going to school or that she fears contracting infantile paralysis, or that she feels guilty and the disease is her punishment, or that she regresses to "paralyzed infancy," or that she is attempting to interpret a somatic condition present during sleep, or, in the words of the great American public, "it was something she ate." Each interpretation rests upon a different hypothesis. In the face of such diversity, one might decide to toss overboard all theories and "let the dream speak for itself." But the raw dream tells us nothing about this girl's personality. Interpretation is necessary if dreams are to be used for the appraisal of personality.

. . . For us, the dreams of an individual represent attempts to resolve his current conflicts. The conflict may be between opposing motives, e.g., sex vs. the approval of society, or between opposing emotions, e.g., love vs. hate. The conflict may be between a motive and a barrier, e.g., a desire to become a famous surgeon which is blocked by insufficient ability, or between an emotion and a barrier, e.g., hate for a parent the expression of which is barred by economic dependence upon the parent. The conflict may involve such large segments of the emotional and motivational structure that it causes a split in the whole structure, i.e., dual personalities contending with each other as in the Faustian legend. Occasionally, a dream proffers no solution but portrays only the anxiety which is generated by the conflict. Anxiety dreams may tell little or nothing about the reason for the anxiety; they may merely indicate that the dreamer is in a state of conflict. Since conflicts occur between motives and emotions, an account of the individual's conflicts will yield a description of the active components of his inner dynamics, i.e., strivings, feelings, defenses, frustrations, values, needs. In its most succinct form, our theory states that dreams are projections of the person's inner dynamics.[3]

The interpretation of dreams is rendered difficult by virture of the distorting mechanisms, to wit, condensation, displacement, symbolization, and secondary elaboration. Since the reported dream presents such a distorted picture it may be asked how any single dream can be properly analyzed unless the interpreter has an immense fund of knowledge concerning the dreamer. This was Freud's contention and one of the reasons cited by him for electing to interpret his own dreams as illustrative material for *Die Traumdeutung*. However, if it is necessary to know the inner dynamics of an individual before the meaning of his dreams can be unraveled, of what use is dream interpretation? Large-scale studies of personality require a method of appraisal which is more economical of time than is the individual case study employed by the clinician.

The method proposed here presumes to overcome this barrier by substituting the analysis of a dream cycle for the analysis of the single dream. The dreams of a cycle are perused in order to get the atmosphere of the dreams as a whole and to ascertain which of the dreams are especially revealing of inner conflict. Often the meaning of one dream is self-evident and illuminates a major conflict like a spotlight shooting its beam into the darkness.

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[3] The ways in which the dreamer tries to solve his conflicts may also indicate something about his personality traits. For example, if one person assumes a submissive role in his dreams, and another sees himself attacking his problems with confidence and boldness, it is possible that these dream traits are reflections of customary modes of behavior in waking life. Hostility, regressiveness, slyness, chicanery, duplicity, explosiveness, shyness, amiability, altruism, persistence are a few of the traits which might reveal themselves in dreams. This hypothesis will not be considered in the present paper but it warrants investigation.

Armed with the hypothesis drawn from a spotlight dream, the other dreams of the series are scrutinized for projections of the same basic conflict. If a number of dreams of an individual fit in with the same interpretation, this interpretation is felt to be corroborated and is assigned to the dream series. The dream series may contain more than a single major conflict, although it has been our experience from examining scores of dream cycles that only one major conflict is usually found.[4]

If the interpreation of the spotlight dream is not supported by others, then another hypothesis as to the contending forces is formulated. This hypothesis is similarly tested by applying it to the analysis of other dreams. The interpreter proceeds in this fashion until he has found a framework which accommodates the dreams of the cycle. The operations are like those performed in working a jig-saw puzzle. The individual dreams are fitted together by testing one inference after another until an interlocking, coherent, organized, and meaningful appraisal is obtained.

The following case is presented to illustrate the method.

CASE A

Subject: Female, 20 years, college junior.[5]

Basic Conflict: Desire to establish an autonomous and independent life either through a career or marriage, preferably the latter, vs. fear of leaving the security provided by the family.

> *Spotlight dream A1* I dreamed that I volunteered to go overseas as a teacher. I went to Italy to teach the children there. My dream consisted of leaving my family and being very graciously welcomed in Italy by an Army officer and his wife. I was married shortly after my arrival there. Most of my dream was the difficulty I had leaving home.

Interpretation: The basic conflict is clearly projected into this dream. She does leave home, even the country, yet despite the presence of parental substitutes in Italy and a speedy marriage, much of the dream is concerned with the difficulty she has in leaving her home. That the dreamer is aware of the conflict is indicated by the explanatory comment appended to the dream. "I guess this dream has to do with my fear of leaving home. I have never been away for more than a week and my folks keep insisting it would be wise for me to leave for awhile."

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[4] This suggests the interesting hypothesis that the inner dynamics can accommodate only one conflict at a time.

[5] At the time of the analysis, only the fact that the dreamer was a female was known.

> *Dream A2* I dreamed last night I was in a train station with my sister. We were supposed to make a certain train, but for some reason neither of us could find the right track. It was most confusing and all I can remember is the two of us racing about trying to find that train in a large depot that had many tracks and entrances.

Interpretation: She wants to get away from home but the threat of insecurity prevents her from finding the proper train, even though she has the companionship and support of her sister.

> *Dream A3* I dreamed I was back in high school again.

> *Dream A4* My dream last night was quite confusing. I was attending college classes but was in high school. I was in the high school building attending classes with my high school friends, but the classes themselves were those I now attend. It was rather a review of a typical day as I used to have them in high school. We were planning to attend a football game after school and things were quite exciting.

Interpretation: These are regressive dreams. If she were back in high school it would not be necessary for her to make the choice between family security and individual freedom. A4 shows that intellectually she prefers college to high school but it would be less threatening to her if the classes were held in the high-school building. Regression offers a neat solution to her main problem.

> *Dream A5* I dreamed I got infantile paralysis and found I would have a permanent affliction. I had to quit school and life seemed pretty miserable.

> *Dream A6* I dreamed I had an accident and broke my

> leg. The rest of the dream I was in the hospital getting just loads of attention and sympathy. Friends came to see me and one of my overseas friends was even given a furlough to come home for awhile. The pain I might have had from a broken leg never entered the dream. It was all very pleasant and I was the center of attention.

Interpretation: The solution found in these two dreams portrays the desperation she feels. She is willing to endure infantile paralysis in order to resolve the conflict. The leg fracture, while not as serious, is equivalent to infatile paralysis since it immobilizes her. In either case, she cannot leave the family. Moreover she becomes the recipient of attention and sympathy, and a boy-friend is even given a furlough to visit her. But these gratifications are merely the by-products of the primary wish-fulfillment, to remain with the family.

> *Dream A7* I dreamed again last night that a friend of mine who is a German prisoner was returned home.

> *Dream A8* I dreamed I went to church one Sunday and one of our members, who has been reported missing overseas, was there. Before he left we had been good friends—but for some reason he refused to even speak to me. I was quite put out and couldn't understand the reason for his actions.

Interpretation: The ambivalence toward her boy-friend, wanting him and being rejected by him (which very likely means she is rejecting him) is a variation of the basic conflict. If he would reject her she would not have to marry him and consequently she could remain with her parents.

> *Dream A9* I dreamed that my family and I took a trip out west.

Interpretation: This is a simple way of handling her conflict. She gets away from home but she takes her family with her.

> *Dream A10* I dreamed my mother was very ill and after much anguish, etc., died. It was pretty gruesome.

Interpretation: Considered by itself and independent of the other dreams, this dream is a projection of hostility against the mother. She is hostile because the mother is insistent that the dreamer should become more independent. There is another interpretation which is consistent with the unifying theme. By her mother's death, the family would be dissolved, forcing her to become independent.[6]

> *Dream A11* Last night I dreamt about the first day of this summer session. I couldn't seem to get to classes on time and the textbooks weren't available. I was terrifically upset and felt as if the situation was too involved for me to cope with. I woke up this morning worn out from that experience in which I was at a loss and felt very defeated.

Interpretation: The anxiety pictured in this dream is evoked by the significance which the first day of classes has for her. The beginning of a new term brings her that much closer to graduation. Upon graduation she will be forced to break some of the ties with the family and assume some of the responsibilities of maturity. She greatly fears growing up.

Why is so much apprehension generated by the thought of growing up and leaving her family? Is it merely that the girl is timid and feels inadequate to undertake the tasks of adult life? Or does her present situation repeat some earlier experience with frustration and rejection? The final dream of the series affords a clue.

> *Dream A12* Last night I dreamed my sister and I were in a play. All I had to do was sing a song, but they didn't give it to me until the last minute and I couldn't seem to learn the song. My sister had the lead and for some reason I was always appearing on the stage when I wasn't supposed to. I did sing my song finally and it turned out to be a success, much to my surprise.

Interpretation: This is a fine example of sibling rivalry. Her sister has the "lead" and the dreamer intrudes when she is not wanted. The dreamer feels rejected because the parents prefer the sister. Therefore the construction which she places upon their insistence that she become independent is that they want to get rid of her in favor of her rival. The dream ends on a reassuring note. She does sing her song successfully. The singing of the song probably symbolizes a satisfactory transition to maturity.

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[6] There is also the classic Oedipus interpretation. Upon the death of her mother, she would succeed to her position. If this were the correct interpretation, it is love for her father rather than desire for security which binds her to the home.

Her inferior status in the family would also create feelings of inadequacy with regard to the establishing of satisfying relationships with boys. She fears rejection from her boyfriend. Unsure of her ability to win the affection and protection of a male, she is reluctant to renounce the security afforded by the family. But she is faced by the loss of this security because she is growing up. This then is the motivation for her dreams—to discover some way of regaining security which with increasing age is rapidly disappearing.

METHODS OF VALIDATION

By using the method proposed in this paper, diagnoses of the inner conflicts of people can be obtained without resorting to any other data than the dream series and the explanatory material offered by the dreamers. How valid are the inferences based upon the interpretation of dreams? Do they bear any relation to the dynamics as they actually exist within the person? May they not be imaginary creations, whose only existence is in the mind of the interpreter? After reading the over-contrived interpretations which is characteristic of so much of the psychoanalytic literature, it becomes obvious that the need for validation is an imperative one.

Before taking up the validity of personality diagnoses obtained for dreams, let us consider briefly the several methods which may be employed for the validation of personal documents.[7]

There are five methods in general use.

1. *Agreement Between Individuals.* If two or more individuals agree on an explanation for a phenomenon, such agreement con-

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[7] We have derived much benefit from the discussion of validation in G. W. Allport's excellent monongraph, *The Use of Personal Documents in Psychological Science.* Social Science Research Council, Bulletin 49, 1942.

stitutes a *presumption* of validity. . . . According to this method, the final arbiter of the correctness of an explanation is not truth; it is expert opinion.

There are three procedures by which the extent of agreement between authorities can be determined. *(a)* One person formulates an explanation and presents it to his colleagues for acceptance or rejection. . . . *(b)* Two or more individuals reach a mutually satisfying explanation by conferring with one another. The case board exemplifies this procedure. *(c)* Two or more persons formulate explanations independently of one another and compare them. This procedure is the most meritorious of the three.

2. ***Internal Consistency.*** The extent to which a series of observations can be made congruent by the application of a single hypothesis testifies to the validity of the hypothesis. The more facts that can be explained by a theory, the stronger is the presumption that the theory is a correct one. For example, if the meanings assigned to the separate dreams of a cycle are consistent with one another, can be subsumed under a unifying hypothesis with one another, and do not logically contradict each other, then the interpretations are said to be valid. The test of internal consistency has found its widest application in the construction of personality inventories.

3. ***External Consistency.*** This expression describes a method of validation which is familiar to all psychologists. An appraisal which is formulated on the basis of certain information, e.g., a test, is compared with some independent criterion. If the two agree the appraisal is said to be validated by the criterion. . . . Similarly, an appraisal based upon the interpretation of a dream cycle may be validated against diagnoses deduced from stories told about pictures (TAT), associations to ink-blots (Rorschach), associations to words, personality inventories, observations of behavior in controlled or free situations, interviews, ratings, expressive behavior, and personal data. This method of validation is very convincing especially if the criterion is an objective one and if the appraisal and the criterion are formulated by independent observers.

4. ***Prediction.*** The prophesying of future events on the basis of a theory is a dramatic verification of the truth of the theory. . . .

5. ***Postdiction.*** This is the method which Thomas Huxley called "retrospective prophesy" or the "method of Zadig," after the character in Voltaire's romance. Zadig was the original Sherlock Holmes. By small cues which escaped the senses of ordinary men, he could reconstruct the past. G. W. Allport calls this method *postdiction*. Postdicting has an advantage over predicting since the investigator may more conveniently verify whether a postdicted event has occurred than wait for the occurrence of a predicted event.

These five methods of validation have a common denominator, *agreement*, and may therefore be designated as (1) social agreement, (2) internal agreement, (3) external agreement, (4) agreement with the future, and (5) agreement with the past.

VALIDATION OF DREAM INTERPRETATIONS

Although the validation of personality appraisals based upon dream series has not progressed beyond the initial stages, some positive evidence has been gathered and this will be presented under the headings set forth in the preceding section.

1. ***Social Agreement.*** Over a period of several months, six people met weekly to analyze and interpret dream series. Although none of the participants was an authority on dream interpretation, all of them were familiar with the basic Freudian principles and possessed considerable knowledge of the dynamics of personality. During these sessions approximately thirty cycles were interpreted. Usually copies of several dream series were distributed at one session to be discussed at the next session so that the participants had a week to formulate their interpretations. This procedure combines both the case-board approach and the method of comparing independently derived interpretations. A large degree of agreement was found between the meanings assigned to the dream cycles by the members of the seminar. There were some minor differences but no major ones. Unfortunately, it is not possible to state the extent of the agreement in quantitative terms. . . . Although a judgment is not necessarily correct because six people concur, it is considered to be more valid than the judgment of a single person. And certainly if six people had made six different interpretations of the same cycle, any hope

of validating dream analysis would have gone glimmering. It is important therefore to have demonstrated the existence of social agreement with respect to dream interpretations.

2. ***Internal Consistency.*** The dreams of a cycle are consistent with one another. They express over and over some basic conflict, in which the dreamer tries now this solution, now that, in a trial-and-error fashion so typical of a person engrossed in problem-solving. . . . There is the poignant cycle recorded by a 21-year-old Negro girl. She feels rejected by white people whose acceptance she yearns for, and she in turn rejects the members of her own race because of their inferior status. In five different dreams she is cut off from a group of people who are usually portrayed as having a good time. Another dream depicts a valiant but unsuccessful attempt to identify with her own race. In this dream she tries to dye a skirt black but it will not take the dye and she finally gives up. Several of her dreams are quite moving. In one she listens to "Rhapsody in Blue" for hours because no matter what station she dials, that selection is being played, in another she is playing tennis and it begins to rain, and in a third she possesses $10,000 but is able to spend only $6.00 of it. There are sixteen dreams in this girl's cycle and they all have a bearing upon her tragedy, that of being separated from white people because they will not accept her, from Negroes because she cannot accept them. . . .

One series of dreams recorded by a 22-year-old boy are filled with the horror, hostility, sadism, and destruction characteristic of Poe's short stories. His friends are swamped by a tidal wave and he barely escapes, he is shown through hell, a giant crab plucks out the eyes of an alligator, a black cat tries to bite him, he is about to fall from a high bridge, a patient whom he is shaving grabs the razor and cuts himself from ear to ear so that the blood gushes out in great spurts like water from a fire-hydrant, he is chased by a large man, and he is injecting his present roommate for syphilis. This series is the most pathological of any we have examined. The reason for his sadistic-masochistic feelings is not clearly revealed in the dreams, although a sexual conflict is suggested. However, the consistency of the mood expressed in the dreams is marked.

The dreams of a 20-year-old college girl tell of the difficulties she has in her relationships with people, especially her parents and boy friend. The spotlight dream of this cycle is a splendid example of a mother-father-daughter triangle.

I dreamed I was in the lake with my mother and father—it was getting dark. The water was covered with a film—like oil would produce. At first we were all swimming out from shore in this filmed area. My father on my left, my mother on my right. Then the filmed area separated. My father remained in the large filmed area and my mother in the smaller filmed area while I was left in clear water. I wanted to swim toward my father but I was told or somehow received the feeling that he wasn't worth swimming to—he was not good—so I swam toward my mother (and here I'm not sure whether it was my own mother or my stepmother)—and just as I entered the filmed part she was in, I got the feeling that my father was really o.k. but we had misunderstood him—but that it was too late to try to go to him so I kept on swimming toward my mother or stepmother, whoever it may be.

Among her other dreams, all of which fit into a common pattern, the following scenes are acted out: an argument between a man and woman, an argument between three people, being beaten up while she is sleeping with her sister in a crib, running into a truck while driving with her boyfriend because the brakes would not hold, walking away from her boyfriend.

The impotence felt by a 22-year-old college boy is reiterated again and again in his dreams. He shoots at Indians who are attacking his house but the bullets are of wood and fall short of the mark, he tries to spear a rabbit but his arm will not move, he is unable to stop a car even though he puts on the brakes, he has difficulty stacking boxes evenly, he has to delay a trip to California because he cannot purchase a ticket, he takes a gun from a girl and shoots at inanimate objects, and he is driving along a narrow, slippery street to a funeral.

Numerous other dream cycles have been analyzed and almost without exception the dreams of each cycle form a homogeneous cluster. This is not surprising, since, in the modern theory of personality, the person is assumed to possess unity even though in his behavior he may express diversity.

Another complete dream series is presented to illustrate the coherence which is to be found in dreams.

CASE B

Subject: Female, 19 years, college sophomore.
Basic Conflict: A desire to remain faithful to her husband, who is in the army overseas, vs. a wish for sexual gratification.

> *Spotlight dream B1* Last night I dreamed that I was walking up the stairs in the administration building and someway or other my dress was flying up around my waist. I remember being terribly embarrassed as the stairs were crowded with students. As I remember, I was running for some sort of an office (that is, I was a candidate) and that was no way to win an office.

> *Spotlight dream B2* Last night I dreamed that I was waiting to be served in a restaurant. I waited an extremely long time and became very impatient.

Interpretation: These two dreams inform us that the dreamer is growing impatient and contemplates direct action to satisfy her sexual need. The embarrassment is a twinge of conscience for having libidinous thoughts.

> *Dream B3* I dreamed my husband was home. We were driving to a picnic (on the beach) and we had a carload of people. I kept praying that I wasn't dreaming, that it was true that he was home. I kept telling myself it must be so because it was so real. I was disappointed when I awakened and found it was just a dream.

Interpretation: This dream represents the best solution for her conflict, namely, the return of her husband.

> *Dream B4* I dreamed that I was in Fort Smith, Ark. I was at some sort of a party and it was in the woods. I suddenly saw my husband. Of course, he kissed me and then we sat down to talk. He said he was bringing some German prisoners over from Germany and he didn't have long to stay. I noticed that he wasn't wearing his wedding ring. I asked him if he had been going out

> with other girls and he said that he had. I asked him if we could go for a walk to get away from the people and to talk. Just as we started for the walk, I awakened.

Interpretation: This is a nice rationalization of an impulse to be unfaithful. If the husband were not true to the dreamer, it would excuse her infidelity.

> *Dream B5* I dreamed that my husband was dead and was in a suitcase in my closet at the dormitory. My roommate and I were frightened when we found him. The undertaker took him (suitcase and all) to a theatre and placed him up where the projector ordinarily is placed. I was sitting there with him crying while at the same time there was a wedding taking place on the stage. The bride was a friend of mine (a redhead) and she had on a pink wedding gown. As I remember, my husband wasn't dead, but he was "kidding" me. I might mention that I quite often dream that my husband is dead.

Interpretation: Under the circumstances it would be better if her husband were dead, since this would leave her free to marry another man. The wedding represents her own remarriage. This interpretation is supported by the color of the wedding dress, which would not look well on a red-haired person but which would be becoming on the dreamer, who is blond. This solution, *i.e.,* the death of her husband, is not acceptable to her, so she treats it as make-believe.

> *Dream B6* I dreamed that I was talking to my brother-in-law and he suddenly turned into my husband.

> *Dream B7* In my dream, my cousin and I were riding and then we suddenly stopped to wait until a helicopter came along to pick us up. I believe I dreamed that we were taken in the helicopter (horses and all) to another trail where we continued our ride.

> *Dream B8* I dreamed that my brother and I went to a small restaurant to get something to eat. Dr. H. was the cook there and he was making waffles. Then he suddenly

> was sitting in a living room and a woman was there. I introduced my brother to him and asked if the woman was his wife. He said, "yes;" but then I remembered that I had met his wife and this woman was very definitely one I had never seen before.

Interpretation: Although desiring male companionship and love, she cannot be promiscuous. A brother, brother-in-law, cousin, or teacher are respectable substitutes for her husband. B8 has interesting possibilities. It may mean that she is trying to rationalize her own conduct by projecting infidelity onto a respected teacher or that she is attracted to the teacher and wishes him to be unfaithful to his wife in order to justify her own desire to promote an affair with him.

3. ***External Consistency.*** No systematic investigation of the congruence of interpreted dream cycles with other methods of diagnosing personality and with personal data has been completed. A study of the relationship between dreams and the Rorschach and TAT is now in progress. Preliminary results with the Rorschach indicate that this method either does not describe the same aspects of the personality that dreams do or that the Rorschach and dreams yield different descriptions of the inner dynamics. . . .

Through personal interviews with a number of subjects whose dream series had been analyzed, many of the interpretations were verified. For example, the girl in Case B, cited above, admitted that she was having a strong conflict with regard to the satisfaction of her sex drive. She did not believe her husband was going with other girls, but she rather hoped he would so she could indulge her own libido. The colored girl whose dreams showed she was foiled in her attempts to gain acceptance by white people and who could not accept her own race has a white grandmother and other white ancestors. Two of her brothers can pass as white. Her family lived in a white neighborhood for years and the dreamer has gone out with white and Negro boys. Although she denied any feeling of being discriminated against as a Negro, her comments during the interview belied this denial.

Another girl whose dreams revealed a strong fixation upon her father readily admitted that she was very attached to him.

This was borne out by observations made by other students who had visited in the dreamer's home. They noticed that the father and daughter were intimate companions and treated the mother as an outsider. Space does not permit us to multiply examples similar to the foregoing.

4. ***Prediction.*** The method of validating dream interpretations by prediction is especially tricky since it is often difficult if not impossible to calculate the probability of occurrence of any given life event. For example, a prediction was made on the basis of two dream cycles recorded by a college boy and girl who at the time were going steady that they would soon break up. The prophecy came true. Before we can properly evaluate the significance of this prediction it would be necessary to discover how many college romances are blighted. If it were found that in 95 per cent of the cases such affairs are broken off, then our prediction would have little merit since a "guess" unsupported by any evidence would be right 95 per cent of the time.

In another case, it was predicted from his dreams that a college freshman boy would adjust himself to the college environment as soon as he had made friends and could participate in group activities. This came to pass. Again the significance of this prophecy is questionable since the situation must be a fairly typical one. Another prediction was made that a girl whose dream series revealed a strong attachment to her father would fall in love with a man who resembled him. Shortly after this prediction was made she met and married such a man. What are the odds that a girl will be attracted to a boy who is a father-image?

Foretelling of the future is dramatic but it may be spurious unless the odds are known. Until such a time as probabilities can be determined not much confidence can be placed in the method of validating dream interpretations by prediction. It is suggestive, however, that a number of correct predictions have been made.

5. ***Postdiction.*** The same difficulty is encountered in the method of validation by postdiction. In one instance the postdiction was made that the dreamer's mother had died several years before. As in prediction, we would need to know in what percentage of cases the mothers of our subjects are deceased. Then it would be necessary to make a number of postdictions from

the dreams as to whether the mothers of different dreamers are alive or dead. But this second step assumes that a number of dream series can be obtained from which one is able to draw this inference. Actually few such dream series will probably be found, so that the sample will not be sufficiently large to make a trustworthy comparison between postdictions and probability of occurrence.

SUMMARY

There is presented in this article (1) a viewpoint regarding dreams as psychological data, (2) a theory of dreams, (3) a method for analyzing dreams, and (4) some evidence for the validity of dream analysis.

The *viewpoint* is that dreams are personal documents and projections which can be employed for the appraisal of the inner dynamics of the personality.

The *theory* states that the dreams of an individual represent attempts to resolve his current conflicts.

The *method* involves the analysis of a series of dreams as a unified and coherent structure.

The *validation* of dream analysis by the methods of *(a)* social agreement, *(b)* internal agreement, *(c)* external agreement, *(d)* agreement with the future, and *(e)* agreement with the past is discussed, and evidence for the validity of dream analysis obtained from the application of several of these methods is presented.

No. 18

A COMPARISON OF THE INTERPRETATION OF DREAM SERIES WITH AND WITHOUT FREE ASSOCIATIONS*

Walter J. Reis

INTRODUCTION

The study reported here tried to answer the question to what extent judgments about personality derived from dream series alone agree with those derived from the same dream series when free associations to the dreams are also evaluated. Before this work is described in detail, some underlying assumptions will be discussed.

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*Condensation of a doctoral dissertation (Western Reserve University, 1951). Under the supervision of Dr. Calvin S. Hall. Printed by permission of the author.

The traditional and most frequently used technique to interpret dreams since the publication of Freud's book on dreams in 1900 is to collect free associations to the dream as a whole, its parts, and the feelings in the dream. From these data the dream analysant and analyst in a cooperative enterprise try to decipher the motivational sources of the dream.

While perhaps not experimentally "proven" this technique has shown its usefulness in clinical practice so repeatedly that it has become part of the working equipment of most psychotherapists, though they may differ in some details of usage.

Though this technique is used widely in psychotherapy it does have certain shortcomings, especially when the objective is not psychotherapy but limited to the understanding of personality dynamics. In the latter instance, the collecting of free associations to dreams is often not economical in terms of time and effort on the part of subject and investigator since less time consuming techniques of personality diagnosis, (Rorschach, for example) are available. Another disadvantage with free association is that people vary a great deal in their aptitude for free associations. Therapists and investigators too, differ in their aptitude to elicit free associations.

Thus it would be worthwhile to investigate how much can be learned about the personality of people solely from their dreams. But over and above these practical considerations the question whether dreams alone can reveal the personality of the dreamer is a significant theoretical problem.

There has been in recent years a more open interest in manifest dreams as indicated by published material. Erikson's[1] approach to the manifest dream consists of a careful examination of certain formal aspects such as partial and emotional content of the manifest dream. It must be noted that the subject of the study here is the individual dream.

A somewhat different approach was made by Hall[2] who studied dream series as a whole. His technique was to collect a number of dreams from subjects and then examine them as a unit, starting with a "spotlight dream" i.e., a dream with important obvious significance, and fitting the rest together in as internally consistent a picture as possible. This method is not unlike that used in putting together a jigsaw puzzle where one usually starts with a prominent piece and then fits the rest around it. The criterion is how well the pieces fit together and whether they make a meaningful picture. In this method the degree of internal consistency is the criterion of validity of the interpretation unless other data such as tests are available. The assumption underlying the acceptance of internal consistency as criterion for validity is that there is only one optimal fit which represents the correct understanding of the meaning of the dream series. Hall used in his work a fairly orthodox Freudian theoretical framework.

THE PROBLEM AND THE SUBJECTS

The question immediately arises to what degree does Hall's method of dream interpretation produce results comparable to those achieved by the use of dreams and free associations? Specifically, to what extent in qualitative and quantitative terms does the picture of a dreamer's personality, as derived from a series of dreams alone, agree with that derived from the same dreams if free associations to these dreams are also evaluated? This was the problem of the study. It was carried out in partial fulfillment of the requirements for the Ph.D. degree in psychology by the writer at Western Reserve University from June, 1949, through September, 1950, under the supervision of Dr. Calvin S. Hall. It should be noted that the validity of the personality picture derived from dreams and free associations is not an issue of this study, but for the purposes here is taken for granted.

The subjects were 24 college students, 12 male and 12 female, who volunteered for the study. The age range was 19 through 27 for the males, 19 through 21 for the females. The mean age of the total sample was 20.7 years, being 21.5 years for the boys and 19.9 for the girls. Thirty-seven and one-half per cent of the subjects were psychology majors, 42.7% of the males and 33.3% of the females.

DESIGN OF THE STUDY

The study consisted of the following parts:

I. The Rating Scale
- A. Development of a quantitative personality rating scale along psychoanalytic lines on which dream series alone and dream series plus free associations could be rated reliably after adequate training in its use.
- B. Demonstration of the reliability of these ratings of dream series alone and of dream series plus free associations.

II. The Study Proper
- A. The collection of dream series from college students who volunteered for this study.
- B. The rating of the dream series on the rating scale.
- C. The collection of free associations to the dream series.
- D. The rating of the same dream series with the addition of free associations.
- E. Quantitative comparison of the agreement of ratings from dream series alone with those from dream series plus free associations.

This research plan will now be discussed in detail.

The Rating Scale. The writer had to develop his own rating scale because existing scales were not adequate for the purpose. The rating scale should reflect the psychoanalytic personality theory since this is a theoretical framework within which this writer thinks. The rating scale should also be adapted as much as possible to the way a practical clinical psychologist operates in his daily work. Specifically, the clinician does not think in terms of isolated traits, but in terms of the total personality. For this reason the categories should be as global as the thinking of the psychoanalytically oriented clinician who describes personality in terms of orality, oedipus complexes, etc. Lastly, since this writer feels that reliable global judgments are possible, provided raters are taught the technique in personal training sessions, rather than by a scoring manual, the units of the rating scale should reflect a fairly high level of abstraction. The following rating scale while far from perfect seemed more suitable for the purposes of this work. (See Table I—Rating Scale)

TABLE I

THE RATING SCALE

	A. Psychosexual Development			
1.	Oedipus resolution	a) positive	b) unresolved or otherwise	c) negative
2. (a)	Males: castration fear	a) strong	b) moderate	c) weak or absent
2. (b)	Females: penis envy	a) strong	b) moderate	c) weak or absent
3.	Primary dominant stage of psychosexual development	a) oral	b) anal	c) phallic or genital
4.	Secondary stage of psychosexual development	a) oral	b) anal	c) phallic or genital
5.	Degree of narcissism	a) strong	b) moderate	c) weak or absent
6.	Type of sexual orientation	a) homosexual	b) bisexual	c) heterosexual
7.	Quality of sexual adjustment	a) good	b) moderate	c) poor
	B. Family Relations			
8.	Intensity of relation to mother	a) strong	b) moderate	c) weak
9.	Quality of relation to mother	a) harmonious	b) medium	c) unharmonious
10.	Intensity of relation to father	a) strong	b) moderate	c) weak
11.	Quality of relation to father	a) harmonious	b) medium	c) unharmonious
12.	Quality of relation to siblings	a) harmonious	b) medium	c) unharmonious
	C. Present Adjustment			
13.	Intensity of relation to same sex	a) strong	b) moderate	c) weak
14.	Quality of relation to same sex	a) harmonious	b) medium	c) unharmonious
15.	Intensity of relation to opposite sex	a) strong	b) moderate	c) weak
16.	Quality of relation to opposite sex	a) harmonious	b) medium	c) unharmonious
17.	Ego strength	a) strong	b) moderate	c) weak
18.	Id strength	a) strong	b) moderate	c) weak
19.	Superego strength	a) strong	b) moderate	c) weak

TABLE I *(continued)*
THE RATING SCALE

20. Emotional control
    a) rigid b) moderate c) weak
21. Aggression toward others
    a) strong b) moderate c) weak
22. Aggression toward self
    a) strong b) moderate c) weak
23. Anxiety
    a) strong b) moderate c) weak or absent
24. Emotional maturity
    a) mature b) moderately mature c) immature
25. Degree of psychopathology
    a) strong b) moderate c) weak or absent

To demonstrate the point that global judgment of this nature can be made reliably from dream series alone as well as from dream series with free associations co-workers Lane and Johnson-Dyer were instructed in the technique of rating dream series alone and dream series with free associations respectively on this rating scale, and their ratings compared statistically with those of the writer. The results of these reliability studies are reported in the next section. Lane, who has since then received her Ph.D. in psychology, was at the time a graduate student in psychology at Western Reserve University. Johnson-Dyer was at the time an undergraduate with a major in psychology at Western Reserve University.

The rating of dreams with and without free associations was done in the following manner:

A. The rating procedure of the dream series alone consisted in the following steps:
    1. Fast reading of the dreams in chronological order to get an overall impression.
    2. Detailed analysis of all dreams, starting with a "spotlight" dream and continuing with dreams as they seemed to be pertinent to the problems raised.
    3. Third reading of the dreams in chronological order with the idea of constructing an internally consistent personality picture and to fit in loose ends not yet integrated in step 2.

4. Rating and recording of the ratings of the personality as understood at the completion of step 3.

It took on the average of four to five hours to rate a dream series.

B. The rating procedure of the dreams and associations which were studied in chronological order of the collection of the free associations, consisted in the following steps:
    1. Study of each dream and associations with the view of developing hypotheses which could be accepted or rejected by subsequent associations.
    2. Detailed study of the dream elements and the free associations.
    3. Review of the dream as a whole in the light of all the material studied so far.
    4. Construction of an internally consistent personality picture, trying to integrate as many facets as possible after study of all dreams and free associations in this fashion.
    5. Rating of the personality as understood at the completion of step 4.

It is estimated that it took on the average, eight to ten hours to rate an entire dream series and associations.

THE STUDY PROPER

A. ***The Collection of the Dream Series.*** Since it was felt that a genuine desire to participate in the study on the part of the subjects was crucial, the enlistment of the subjects was done in such a way to give the subjects a feeling of worthwhileness of their contribution.

The time interval between the occurrence of the last dream in each dream series and the first trial session in which the subjects learned how to free associate varied. The choice of using ten dreams rather than any other number was arbitrary.

After receiving the dream series they were rated by the writer on the rating scale.

B. ***The Preliminary Interview.*** The first session at which most of the students met the investigator for the first time was dedicated to getting acquainted and learning how to free associate. The investigator conducted all interviews in a small room of his home which contained among other pieces of furniture a comfortable couch, a little table and an easy chair. For the preliminary talks the potential subject sat on the couch while the investigator faced him in the easy chair. During the period of free associations the investigator was seated behind the subject with the little table in front of him slightly to the left of the subject to permit observation of the subject. After some rapport was established, the potential subject was asked to lie down on the couch, make himself as comfortable as possible, loosen his tie, etc. He was told to relate a recent dream which he had not reported as part of the study. Most individuals complied and the dream was treated in the same fashion as described in the section on free association, except that the associations were not recorded by the investigator. In those few instances where the subject could not remember such a dream, he was asked to make one up which was then treated in the same fashion.

C. ***Collection of Associations.*** When an individual came the second time, work began in earnest. The physical setup was as described before. This time, however, the responses of the subjects were recorded by the investigator.

It is not easy to describe the technique which the investigator used to evoke the associations, since a great deal consisted in an intuitive appraisal of the subject's personality in regard to where and how deep to probe. Formally the procedure of collection of free associations consisted in the following steps:

1. Selection of the dream to be worked on. In the course of the first rating without free associations the dream series was studied in detail. The dreams were then arranged more or less in the order of increasing complexity and taken up in this order unless the subject preferred some other dream.

Greatest importance was attached to the development of self-confidence in the dreamer's ability to interpret his dreams. This end seemed to be served best by the order of progressively increasing complexity.

2. After the dream was chosen, it was read as a whole to the subject to refresh his memory, since in most instances there was a considerable time gap between the dream and the period of associations. After reading of the entire dream, some subjects made remarks about its meaning and these were recorded.
3. Next, each sentence and finally each part of a sentence if necessary, was read to the subject and his associations recorded.
4. Associations were also collected to all feelings which occurred with the dreams and proved to be most important.

As written down here the process seems mechanical. Nothing could be farther from the truth. If one were to conduct the session in a mechanical fashion, the response, for example, to the stimulus word, "chair," would be associations like "table," "desk," "couch," etc. However, this investigator was not after associations *per se,* but after meaningful associations, i.e., associations that fit into an internally coherent personality picture. To this end the subject was at all times urged to integrate the material produced. Much of the time of each session consisted more in a dream inquiry than in the production of associations. When there was a block in the dream inquiry, the emphasis was shifted to free association. In some instances the attempt to integrate interferred with the production of free association. In these instances the subject was urged to forget about the dream temporarily and was later guided back to a more integrative set.

Underlying all the work with the subject was the attitude, which was carefully implanted and fostered, that he, and only he "knew," in some recess of his mind, the meaning of the dream and that he was the one to discover it. He was told that a dream is comparable to a stage production, of which he is the director, and that he was the one to answer all questions of the why and how of the production, granting that this might involve finding it out by roundabout ways. If the subject did offer an interpretation, the attitude of the investigator was one of skepticism, which was expressed as follows: "Is that what it means?" "How do you know?" "Let's see why." "Can you prove it?"

The responses of the subjects to their dreams were recorded as faithfully as possible by the investigator in longhand. The recording turned out to be by far the most thorny part of the whole study.

Many subjects used the sessions for discussion of their personal problems, though this had not been suggested, at least not consciously. The attitude on the part of the investigator which made subjects feel free to discuss their problems is considered a necessary condition to elicit the quality of material which the investigator wanted to and did obtain from the subject. If the investigator had indicated more or less subtly, "We have only time for dreams," or, "Let's discuss this later," it would have meant a great loss in the intensity of rapport and a concomitant reduction of the depth and meaningfulness of the material produced.

After the collection of the free associations to the ten dreams, the investigator rerated the dream series on the personality scale in the light of the free associations.

RESULTS

Statistical Procedure. In this section, Study I will refer to the first reliability study carried out by co-worker Lane by the rating of twenty-four comparable but different dream series prior to the study, and comparing her ratings with those of the investigator on the same data. Study II will refer to the reliability study carried out by co-worker Johnson-Dyer, by rating of ten dream series (six male and four females) and pertaining associations which are part of this study, and comparison of her ratings with those of the investigator based on the same material. Study III will refer to the comparison of the two sets of ratings of the investigator on the twenty-four subjects (twelve males and twelve females) based on the dreams alone with those based on dreams with free associations.

The concept of reliability, as it applies to this thesis, is discussed in detail in Lane's[3] paper. We shall, therefore, be brief in our treatment.

Each of the co-workers rated each case on all twenty-five ratings, i.e., they were forced to make a rating regardless of whether they felt sufficient evidence was available for a rating. The investigator rated only in those instances where he felt a rating was justified by evidence. Thus, each co-worker had on each item of the scale three choices, "a," "b," and "c," while the investigator had four choices, i.e., the same as the co-workers plus "no rating."

A complete agreement between two ratings like "a"—"a," "b"—"b," or "c"—"c," was counted one point (1.00). A one step disagreement like "a"—"b," "b"—"a," "b"—"c," or "c"—"b," was counted half a point (0.50). Total disagreement like "a"—"c," or "c"—"a," was counted zero point (0.00).

Table I gives the rating scale and numbers assigned to each item on the scale.

Tables with the Quantitative Results. Table II gives the complete results of Studies I, II, III. In this table the column headings and abbreviations have the following meanings:

1. Item number refers to the item number on the rating scale as given in Table I.
2. N I, N II, and N III refer to the respective N's of the three studies.
3. % I, % II, and % III refer to the percentage agreement for all items between co-worker Lane and the investigator in Study I, co-worker Johnson-Dyer and the investigator in Study II, and the investigator with himself, after study of dreams alone and dreams plus free associations, in Study III, respectively.
4. Sig. I, Sig. II, and Sig. III, refer to the levels of significance with which the chance hypothesis can be rejected, on all items in all three studies.
5. "<" sign next to a level of significance indicates that the item did not reach that level of significance, i.e., percentage agreement.

TABLE II

SUMMARY OF RESULTS OF STUDIES I, II, AND III

Item	*Study I*			*Study II*			*Study III*		
	N I	*% I*	*Sig I*	*N II*	*% II*	*Sig II*	*N III*	*% III*	*Sig III*
1	15	90.00	2%	10	100.00	< 2%	20	100.00	< 1%
2	24	75.00	<10%	10	100.00	< 2%	24	83.33	< 2%
3	24	75.00	<10%	10	90.00	<10%	24	79.17	< 5%
4	20	72.50	>10%	10	95.00	< 5%	21	73.81	>10%
5	24	85.42	< 1%	10	95.00	< 5%	24	89.58	< 1%
6	24	81.25	< 2%	10	100.00	< 2%	24	79.17	< 5%
7	22	84.09	< 2%	10	100.00	< 2%	24	87.50	< 1%
8	12	79.17	>10%	9	83.33	>10%	18	88.89	< 2%
9	11	72.73	>10%	9	88.89	<10%	17	88.24	< 2%
10	15	70.00	>10%	10	95.00	< 5%	21	76.19	<10%
11	15	83.33	< 5%	10	85.00	<10%	20	65.00	>10%
12	6	100.00	<10%	5	100.00	>10%	9	83.33	>10%
13	23	71.74	>10%	10	80.00	>10%	24	79.17	< 5%
14	23	82.60	< 2%	10	100.00	< 2%	21	78.57	< 5%
15	23	80.43	< 5%	10	85.00	<10%	24	72.92	10%
16	22	90.91	< 1%	10	100.00	< 2%	23	73.91	<10%
17	24	70.83	>10%	10	90.00	<10%	23	70.83	>10%
18	24	79.17	< 5%	10	85.00	<10%	24	72.92	10%
19	24	79.17	< 5%	10	80.00	>10%	24	70.83	>10%
20	23	86.96	< 1%	10	80.00	>10%	24	64.58	>10%
21	24	84.58	< 1%	10	95.00	< 5%	24	70.83	>10%
22	24	77.08	< 5%	10	90.00	<10%	24	64.58	>10%
23	24	87.50	< 1%	10	90.00	<10%	24	85.42	< 1%
24	24	75.00	<10%	10	80.00	>10%	24	85.42	< 1%
25	24	87.50	< 1%	10	95.00	< 5%	24	87.50	< 1%

DISCUSSION OF THE RESULTS

In Table II we have given the levels of confidence with which the chance hypothesis can be rejected. The underlying assumption is that all ratings (a,b,c) have an equal probability of occurring, i.e., the rater has no preference for a particular rating. This assumption might be challenged on the grounds that, for example, ratings "a" and "c" do not occur at all on item one, which is incidentally the only item on which this happened. Of course, it is perfectly true that this item does not differentiate, and cannot for that reason be used for that purpose. It would have been very unwise to force the statistical curve on the data, which would have not been difficult to do. As a matter of fact, during the study the raters never investigated how often they had used the various ratings (a,b,c), but made the judgment which seemed to fit the case best. Actually the universal rating of "b" in this case is very meaningful, suggesting that our sample as a whole had unresolved Oedipus complexes. In other words, the investigator holds that the absence of ratings "a" and "c" in this case is not due to a reluctance on the part of the rater to use these categories, but to the distribution of the characteristics in question in our sample.

As far as changes in the sense of addition are concerned, Study III offered opportunities for six hundred ratings (twenty-five ratings on twenty-four subjects). After reading of the dreams alone the investigator made five hundred fifty-four or 92.33 per cent of the possible ratings. After additional study of the associations he made five hundred eighty-five ratings, that is, 97.50 per cent of the possible ratings, or an addition of 5.17 per cent to the ratings made on the study of the dreams alone.

This shows that after study of the free associations the judges were not able to rate many more variables than they had been rating after study of the dreams alone. If the objective of collecting free associations to dreams had been to permit more variables to be evaluated the small number of additional variables which could then be rated would not be considered a worthwhile return for the time and effort invested.

The ratings do not suggest that there were systematic differences in the percentage agreements on male subjects versus female subjects either in Study II or III.

Even if all the items were rated reliably, knowledge of all the ratings on a subject would not reveal enough about the individual to give the reader an adequate picture of the subjects personality. More specifically, the rating scale is not adequate to give a rounded picture on two counts:

a) There were not enough variables to be rated. For example, the absence of items on ego-defenses is one such glaring defect.

b) The items on the scale do not have enough steps to permit adequate individuation. In terms of reliability it was probably a good idea to start with a three point scale, but preliminary work suggests that a five point scale may actually improve reliability.

While there was good agreement between the ratings on dream series alone and those on dream series with free associations, it must not be assumed that the collection of free associations is not useful for the understanding of the personality. An infinitely richer picture of the personality, so to speak in flesh and blood, was derived after the study of the free associations. From the dreams alone, a shadowy blueprint of the personality with many ambiguities developed before the dream interpreter's eyes, while the addition of the free associations gives one the feeling of knowing the person, seeing him clearly delineated in the matrix of his environment.

From the work with these dreams and associations many possibilities for future research were suggested. . . .

SUMMARY AND CONCLUSIONS

The personalities of twenty-four college students were rated on a scale of twenty-five items from dream series of ten dreams each, with and without free associations.

It was demonstrated by the study proper (Study III) and the reliability studies (Studies I and II), (the latter carried out by two raters other than the investigator) that: (a) many ratings can be judged reliably from dream series alone; (b) many ratings can be judged reliably from dreams and free associations; (c) and many of the ratings derived from dreams series alone agreed with those derived from dreams with free associations; (d) dreams alone suggest the blueprint of the personality while free associations add the brick and mortar, so to speak.

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USE OF HYPNOSIS

SECTION B

No. 19

AN EXPERIMENTAL APPROACH TO DREAM PSYCHOLOGY THROUGH THE USE OF HYPNOSIS*

Leslie H. Farber and Charles Fisher

INTRODUCTION

Because of the difficulty of investigating emotional processes experimentally, the investigation of dream psychology has progressed little since the publication of Freud's Interpretation of Dreams, a fact which Freud noted in 1933 when he complained that analysts 'behave as though they had nothing more to say about the dream—as though the whole subject of dream theory were finished and done with'. He called attention, as an exception, to the pioneer work of several Viennese investigators who, using hypnosis (Schrotter) and other methods, had made a start in the experimental confirmation of the theory of dream symbolism. Unfortunately this research was not pursued. The last two decades have seen considerable development of hypnotic techniques in the study of various unconscious processes. . . .

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To develop a method of dream study which might be more objective than the interpretive technique used in analytic therapy, a group of average college students were used as hypnotic subjects. With them as subjects the following problems were investigated:

1. *The capacity of normal individuals under hypnosis to understand dream language and the factors which might influence this understanding.* In hypnotic and other dissociated mental states, individuals show capacity for understanding and interpreting the unconscious psychic productions of others. It is well known that schizophrenic patients are able to interpret dreams. . . .

2. *The production of experimental dreams under hypnosis.*

3. *The nature of the relationship between hypnotist and subject. . . .*

The . . . hypnotic subjects were recruited from a Washington university. . . . The volunteers were from 18 to 21 years of age. Those who seemed unstable were immediately excluded, and only those who proved to be naive about psychology, ignorant of any knowledge of the theory of dreams, were chosen. They were asked not to read about the subject for the duration of the project. Those selected were average students, with no conspicuous personal problems and no special talents, either artistic or intellectual.

DREAM TRANSLATION

Under hypnosis the subjects were directly presented with dreams, of which some were fantasies of the experimenters, some produced by other subjects during hypnosis, some were the dreams of friends and patients, and a few were myths and psychotic productions. For example, an eighteen-year-old girl was told under hypnosis: 'Dreams have meaning. Now that you are asleep you will be better able to understand them. A girl dreamt that she was packing her trunk when a big snake crawled into it. She was terrified and ran out of the room. What do you think the dream means?' Almost before the question was finished, the subject blushed, hesitated a second, then said, 'Well, I guess she was afraid of being seduced. The snake would be the man's sex organ and the trunk hers.'

As a control, subjects were always questioned about the dream before and after hypnosis, and in no instance did the subjects in the waking state make any comment comparable to that obtained under hypnosis. Care was taken not to ask leading questions nor to reveal the experimenters' interpretations of the dreams.

Several female subjects were given this dream: 'A boy was sitting at his desk studying when the waste basket caught on fire. He ran and got a pitcher of water and put the fire out.' Their immediate response was, 'Oh, he wet his bed,' or, 'He should have gone to the bathroom.' However, a dream about a girl putting out a fire made no sense to them.

It was suggested to one subject that as a child she had wet the bed and been severely scolded by her mother. In response to this stimulus she dreamed of falling into a pond in winter and being scolded by her mother. This dream was then related to a second girl, under hypnosis, who was entirely ignorant of the genesis of the dream. Without any hesitation the second subject said, 'Oh, that girl must have wet the bed!', thus recovering the stimulus that had produced the dream.

A second example illustrating the sexual differentiation of symbols is the following dream given for translation: 'A man is sitting in a dentist's chair while the dentist tries to pull his tooth. He pulls and pulls. The dreamer is in great pain when the dream ends.' Several subjects said the dream meant that a man was having his 'vital organ' cut off. When the dental patient was a woman, the dream was translated as 'giving birth to a baby.'

An exclusive appetite for mushrooms, developed by a psychotic patient, was described to a subject under hypnosis, and she was asked what it would mean if it were a dream. She answered, 'He was very sexual. He might even be homosexual.' Since one of the authors later treated this patient, he can attest to the validity of this student's hypnotic interpretation.

During the first World War, one of the authors had the following vivid nightmare: 'I had been captured by the Kaiser and he made ready to execute me. He placed my head on a chopping block and was about to swing the axe which would end my life, when the dream ended.' Under hypnosis a student said the Kaiser was really the dreamer's father who was going to chop off his penis, not his head. She believed it was a punishment for something—probably some sexual act.

The story of Moses and the bulrushes presented as a dream to a girl subject evoked the response, 'I think somebody was going to have a baby,' adding that the bulrushes stood for pubic hair.

Because of the startling unanimity of response offered by hypnotic subjects, one might at first conclude that dreams are like puzzles which have only one answer—a sexual one. We have come to believe that these uniform sexual responses were influenced by the nature of the hypnotic relationship. Hypnosis is not only a state of consciousness, like sleep, in which dreams occur, but it is also a very striking interpersonal relationship. The most obvious characteristic of this relationship is the extreme dependence of the subjects and their feeling that the hypnotist is omnipotent. Their critical capacities, while not eliminated as Freud once thought, are certainly restricted. The hypnotist too is reacting, not only to the subject, but to the hypnotist's role of omnipotence. His reaction will in turn influence the subject. The relationship contains all the complexities of any relationship between two people, although the belief has developed, because of certain extraordinary aspects of the process, that in hypnosis one deals with something outside the bounds of normal human experience. The unique interaction at any given moment between the personality of the hypnotist and the personality of the subject will necessarily determine the experimental results. Even under what seem to be the same experimental conditions, different hypnotists evoke totally different responses.

Many observers have compared hypnosis to sexual seduction or assault, and it is a commonplace that a male hypnotist can hypnotize women much more easily than men. It is noteworthy that practically all the erotic dream translations cited were obtained from comparatively uninhibited women, and from one male subject who was a rather passive individual with a marked attachment for the hypnotist. Jung is said to have abandoned hypnosis when an awakening subject coyly thanked him for being so decent. 'That demonstrated to me,' he said, 'the true nature of hypnosis.' We have not found that hypnosis is very different in this respect from other transference relationships. Recognition of this factor does not detract from the method, as Jung feared, but increases its scientific validity.

The following example will illustrate how the form of the dream translation will depend on the interpersonal factors described. A shy female subject in hypnosis was told, 'Some time ago you were packing your trunk when a snake crawled into it. You became terrified and ran out of the room.' She then dreamed, 'It was night and I was lost in the jungle. It was muddy and the mud came up to my waist so that I could not move in any direction. There were little snakes on the branches of the trees above me, which kept falling on my arms and shoulders. They kept getting nearer; some of them touched me. Only the mud kept the snakes from going below my waist; they could not touch me where the mud was; they could not get in. I felt safe in the mud.' Questioned about this dream when awake, she said that the snakes were something harmful and the mud signified safety—a mere paraphrase of the dream. Hypnotized again, she was questioned by a person other than the hypnotist. Now the snakes represented something desirable, the mud a barrier to the satisfaction of her desire. First she spoke of the snakes as ideas which attracted her but which other people thought too radical; then as people whose political and social beliefs made them attractive, but who were disapproved of by others; finally, she referred to the snakes as experiences she wished to have but which convention, as represented by the mud, denied her. At this point the interlocutor left the room and the subject's hypnotist questioned her alone. There was then a general relaxation of her facial expression and quite spontaneously she said that the snakes represented a pollution which came from the phallic branches of the trees, and this was the experience she desired. Questioned by a person other than the hypnotist, her translation was on a conventional social level. The dream was perceived in sexual terms in relation to the hypnotist. Both translations are of course parts of the total dream significance.

A similar variation in translation was obtained while attempting to discover how pregnancy would be portrayed in an experimental dream. A hypnotized girl was told, 'Not long ago you discovered that a friend of yours had become pregnant; she came to you and told you how terrified she was to be caught in this way. You were shocked and did not know what to do.' She then dreamed, 'I was on an island and all around me waves were swelling; there were mountains up and down and around. There was a sudden downpour of rain. I felt that everything around me was so powerful that I was just insignificant. I did not know what to do.' Several days later the dream was recalled to her under hypnosis by a person other than the hypnotist. Although she felt the dream was about pregnancy, the small island was the social ostracism and isolation enforced by her predicament, while the rain was the gossip and insinuation which fell on her. When her own hypnotist questioned her, she said that the rain was the downpour of semen.

This difference in response raises some interesting questions. Are the sexual translations due to some direct or implied suggestive influence by the hypnotist? Although it is difficult to eliminate this factor, our impression is that neither the hypnotist nor the substitute exerted any suggestion. Or can the dominant-submissive relationship of hypnosis be a sexual experience to the subject and does this serve to determine the form of his translations? It is undoubtedly true that a number of subjects seem to regard hypnosis as a sexual experience. We believe that this specific characteristic of the relationship with the hypnotist makes for a sexual interpretation, but this cannot be stated with certainty.

Only five, or about 20 per cent of the subjects carefully studied, proved to be able translators of dreams. The explanation for the failure of the remainder of the group is not clear. It can be said, however, that these individuals were quite inhibited and rigid compared to the translators. The reasons for both the ability and inability to translate dreams will be elicited only through careful personality studies of the individual subjects.

Even among the selected group it often happened that a hypnotized subject was unable to make any statement about a dream. This type of resistance could usually be overcome by one of two opposite methods. Sometimes a subject was able to translate his own dream only when it was presented as that of another person. At other times it was necessary to transform another person's dream into his own, by suggesting that this was an actual experience which had happened to him, and then asking him to dream about it.

A pregnant woman of our acquaintance dreamt that as she lay in bed one morning she was horrified to find a number of small white worms crawling over her arm. This dream was offered to a hypnotic subject with no result. The subject was then told that she herself had recently suffered the same horrible experience. She dreamt, 'There was a white candle resting in a small dish beside my bed. The candle burned lower and lower and little wax particles kept dropping into the base of the dish.' When asked about the new dream, she said, 'The man came and that's what the dripping of the wax was'. The first dream about the worms was recalled to her and she said, 'That was the same thing.' With another subject, who was likewise unable to find any meaning in the worm dream, this same manoeuvre of redreaming elicited a dream that the subject was driving alone in a car with her arm resting on the sill of the open window. It was snowing and snowflakes kept dropping on her exposed forearm. After this dream she commented, 'Now I know what the dream about the worms meant. Some girl had had relations with a man and she was afraid of getting pregnant. They hadn't taken any precautions. The worms refer to sperm.' For some reason these two subjects translated the worm dream only after they had in effect restated the dream in their own dream language.

THE PRODUCTION OF EXPERIMENTAL DREAMS

The production of experimental dreams under hypnosis was first successfully accomplished many years ago by Karl Schrotter. In 1912 this investigator reported a series of dreams containing the symbols with which psychoanalytic dream interpretation has made us familiar, and the work was offered as experimental proof for the Freudian theory of symbols. . . . As in sleep, the hypnotized subject will dream spontaneously, and he will also dream about situations that are suggested to him.

The production of such experimental dreams under hypnosis depends, however, upon the capacity of the individual subject to accept in fantasy and live through an emotionally-toned situation suggested to him by the hypnotist. While the situation is being outlined, his facial expressions and bodily movements show that he is experiencing genuine emotion—often painful and sometimes very intense.

The experimental procedure we finally evolved, after considerable trial and error, is as follows: Under deep hypnosis the subject is told, 'I am going to recall an experience that happened to you some time ago. You have probably forgotten it, but as I describe it, you will remember it in all its details.' The experience is then described and the subject is told: 'A dream will come to you. Raise your right hand when the dream begins and lower it when the dream is finished.' After one or two minutes of dreaming, the subject will relate his dream. It should be noted that the subject is not instructed to dream about the suggested situation, but merely told that a dream will come to him. We have been more successful in eliciting dreams with this method, probably because it permits greater freedom of fantasy on the part of the subject.

The dream stimuli we have used fall into two categories, first, those which were sexual, comprising experiences of pregnancy, intercourse, bedwetting, masturbation and homosexuality; second, nonsexual stimuli, including experiences of hostility, false accusation, competition, being taken advantage of, and others. Dreams obtained by hypnosis or by posthypnotic suggestion have all the characteristics of spontaneous dreams, and the subjects do not make a distinction between them. Following the dream stimulus, the subject usually first gives us a dream which is a paraphrase of the suggested stimulus, slightly modified by the inclusion of incidents from his own life experience. As he continues dreaming his subsequent productions have more and more the bizarre and pictorial character of dreams.

Why all subjects are not able to dream under hypnosis is not clear. The reaction to a dream stimulus seems to depend upon a combination of factors which include the nature of the dream stimulus, the personality structure of the subject, and his relationship to the hypnotist. . . . To elicit a dream about pregnancy, we suggested an experience in which a friend had become pregnant. Since the dream is always personalized, we achieved the desired result in the end. Another method of bringing about the acceptance of reprehensible experiences was to place them in childhood. From one subject we were able to elicit excellent dreams by the instruction: 'I am going to recall a certain experience. This did not actually happen to you, but as I tell you about it, you will live through it as if it had.' As a final precaution, we always attempted to remove the stimulus at the end of the experiment by telling the subject that the suggested experiences had not really happened to him.

The following experimental dream involves the play on words that is so frequently encountered in dreams. A young woman was told, 'When you were a little girl you wet your bed and when you awoke in the morning your mother scolded you.' The subject then dreamed that she told a lie which made her parents so angry that they spanked her. In her first account, she omitted the bedwetting, the substance of the lie. Only after considerable questioning by us, and evasion on her part, did she state that what she had lied about was risking being 'run over in order to go to the A and P'.

We have sometimes asked subjects to draw certain objects or figures that appear in their dreams, which frequently helps to clarify their meaning. Marcinowski first demonstrated in 1912 that landscapes in the dreams of his patients represented parts of the body, unrecognizable from the verbal descriptions. Kubie (1934) likewise reported a very instructive case, in which the meaning of a dream was revealed in a drawing representing an airplane as the male genitals.

To investigate symbolization of the female breast, a male subject was given the dream stimulus: 'One day you were walking down a street in one of the poorer sections of town and you happened to see a young woman sitting on the steps nursing an infant. Her breast was exposed and you could see the baby take the nipple in its mouth and suck at it.' His dream was: 'I came to the corner where there was an old, rundown store. I went in to look for a magazine called *Famous Fantastic Mysteries*. I saw some fruit—apples and oranges—and tobacco and candy. They did not have the magazine so I bought some pipe tobacco and went out.

I took the Mount Pleasant street car and rode to the top of a tall hill; it was flat on top; the other side was steep. It was the end of the car line, I got off and stood on the edge and looked down.' Under hypnosis he drew a picture of the hill. . . .

The same subject was told that he had once wet his bed and had felt very much ashamed because that was the sort of thing a child did. He dreamt that he called his mother and told her about wetting the bed. The doctor came and advised an operation. He went to the hospital in a cab with his mother, was prepared for the operation, and was greatly frightened as he was taken to the operating room. Next he was walking out of the hospital and down 13th street to a hardware store in order to buy a woodworking tool. Asked under hypnosis to draw the tool, he drew the head of a hammer.

Past experiences are sometimes incorporated into the dream. A girl, given the dream stimulus of an experience in which she had been caught masturbating by her mother, dreamed: 'My sister and I, dressed in our best clothes, were making mud pies with mud which we kept in a rusty tomato can. We splattered the front of our dresses and mother scolded us, saying that it was my fault that my sister was doing it too.' She later remembered this to be an incident from her childhood, possibly a screen memory.

Another subject, told that while walking through the woods she had been frightened by seeing a snake, dreamed that she and her father climbed a steep, winding path to the top of a hill on which there was a reservoir. As they walked back she leaned on her father's arm. When awake she recalled having made such an excursion to a reservoir with her father. Shortly afterward she went home on vacation and in describing to her father her work with us, she mentioned this dream. He was startled and visibly upset but unwilling to give any explanation. The father's reaction permits the speculation that the girl's casual recollection is a screen memory for an early trauma. As an association to snake, it suggests seeing the father's penis. That experimental dreams might be used to recover forgotten experiences was proposed by Nachmansohn (1925) who made similar observations.

We gave a male subject the dream stimulus of having eaten some green apples and developing a severe diarrhoea. We suggested to him in detail the nature of his symptoms and described the number, kind, changing color and consistency of his stools. All through his subsequent narration he coughed and spluttered. This symptom had not been present before, and it disappeared after the experiment. He dreamed that he was ill in bed. The light was turned on and off several times. It got 'lighter and then darker'. He started and stopped reading several times. He turned on the radio but it kept running on and on, interrupting his thoughts. There was no music—only talk—until finally he turned it off. We believe that the cough and the manner of speaking were symptomatic equivalents of diarrhoea by displacement, similiar to the verbal diarrhoea of the radio which ran on and on.

Many subjects will, when asked, produce a dream without any dream stimulus. These spontaneous dreams often have a manifest content corresponding to the chief conscious interests of the individual. A geology major, with a marked interest in architecture, dreamed repeatedly of architectural groupings and landscapes.

On several occasions we asked a woman physician to be present during hypnotic sessions. During these sessions the subject's spontaneous dreams changed in character. With a woman present, he dreamed of climbing a staircase; of a sewer pipe running through a tunnel; of driving a car around the left side of a mountain into a tunnel.

The hypnotic subject is thus found to be not simply a passive object whose dreams can be manipulated at will by an omnipotent hypnotist. Hypnotic behavior is a meaningful, goal-directed striving, its nature determined by the dynamic unconscious. The subject's spontaneous dreams are influenced by his own unconscious needs and the interaction of these with the hypnotist and any other persons included in the hypnotic situation. Similarly, the dreams elicited in response to dream stimuli are not simple reflections of the stimulus but reveal the needs and wishes of the subject.

Manifestly nonsexual dream stimuli usually evoke dreams expressing the social situation in terms of 'body language'. A young girl was given as a stimulus a situation in which, falsely accused by a friend of cheating in an examination, she became very angry but because of circumstances was unable to deny the accusation. The subject then dreamed that a dentist was trying to pull her tooth despite her frightened protests that the nurse had taken the anaesthetic out of the wrong bottle. In her dream the humiliating accusation is portrayed as bodily assault and deprivation.

A boy was told that he had a rival in his geology class with whom he had trouble competing because he refused to defer to the teacher as the other boy did. The subject then dreamed: 'The geology class went on a field trip. We came to an out-cropping of rock and I started chipping at it with my hammer. A flying fragment of rock hit the other boy in the face, cutting him. That made me feel fine.' Here academic competition becomes a bodily assault on his rival. The examples indicate how a familiar dream symbol may portray a variety of human experiences. Thus, tooth-pulling may represent not only castration and childbirth but also socially insulting predicaments; the attack with the hammer may represent not only homosexual assault but also scholastic rivalry.

SUMMARY

A method is presented for the study of dreams and other unconscious processes by hypnosis. In hypnosis certain subjects have more awareness of the meaning of dream language than in the waking state. This awareness is influenced by the relationship between hypnotist and subject. The similarity of this relationship with other interpersonal relationships was pointed out, as well as the possibility of using this method for the study of transference. A number of experimental dreams, evoked by both sexual and nonsexual dream stimuli, are presented and their special characteristics discussed. The results obtained illustrate the great plasticity of the dream language and argue against too narrow interpretation of symbols.

No. 20

THE EXPERIMENTAL PRODUCTION OF DREAMS DURING HYPNOSIS*

David Ballin Klein

Chapter I

THE THEORETICAL SETTING OF THE PROBLEM

The experimental investigation of dreams has been seriously handicapped through lack of a facile means of producing and controlling the phenomena to be observed. . . .

In a large measure the literature on dream psychology is contradictory and full of bizarre opinions because of the absence of a satisfactory technique for the experimental production of dreams. The principal object of this little monograph is to describe what appears to be such a technique and to indicate the methodological and factual results already obtained by means of it.

Despite the vagaries of dream theories, there seems to be marked agreement concerning the identification of the dream process. In fact, the question "What is a dream?" is frequently not raised in any explicit fashion. By implication, it is taken for granted that the term "dream" refers to so familiar a phenomenon as to require no formal elaboration in the way of a definition. . . .

An . . . endeavor to catalogue such differentia of the dream consciousness as analysis of existing reports of a trustworthy nature seems to justify is found in Hollingworth's *The Psychology of Thought*. Although the latter work does not contain a formal definition of either sleep or dream, . . . it does include a systematic endeavor to list the significant characteristics of sleeping and dreaming. The technique for studying dreams with which this article is concerned was devised as a consequence of endeavoring to demonstrate some of these characteristics to a class of university students registered for a course on the psychology of thinking.

Hollingworth approaches the thought processes by way of rather detailed preliminary considerations of mental activity operative

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*Abridged from *The University of Texas Bulletin*, 1930, No. 3009, 5-71. Reprinted by permission of the author and The University of Texas.

during states of drowsiness and sleep. His justification for this mode of approach is based on the view that such processes exhibit a continuous range of completeness and complexity of integration from the "flashlight hallucinations" of the dozing individual to the efficient, problem-solving symbolic manipulations of the alert thinker. Psychologically sleep is considered a condition of dissociation. In drowsiness we have partial dissociation and as the sleep state supervenes we have more complete dissociation. As the dissociation becomes less complete the sleeper "awakens." The process of waking is thus a matter of integration; to be wide awake and engaged in "normal" mental activities is to be adequately integrated. In terms of this framework of reference we have a diurnal fluctuation ranging from the extreme of dissociation characteristic of deep sleep to the opposite extreme of integration characteristic of vividly alert wakefulness. Our mental processes vary with our shifts along this continuum. Dreams occur as we approach the dissociated condition found in sleep. Presumably the nature of the dream will be modified by any modifications in the extent of dissociation as sleep becomes more profound.

As a result of viewing the dream problem in terms of Hollingworth's approach, the possibility of studying it experimentally by means of hypnosis suggested itself. Such a possibility was rendered plausible on the negative side by our ignorance of the physiology both of sleep and of hypnosis and on the positive side by the rather common opinion that both conditions are characterized by levels of dissociation. Just as sleep may be described as a state of dissociation, so may hypnosis be similarly characterized. The results obtained by testing out this working hypothesis in a preliminary way were sufficiently confirmatory to justify intensive use of the method. . . .

. . . it is our conviction that the mental mechanisms revealed by this hypnotic technique are essentially like those responsible for ordinary dreams. This conviction emerged . . . as a result of our examination of night dreams for the purpose of getting an adequate definition of the term. Such examination coupled with systematic reflection will show that dreaming may be defined as the process of experiencing events which at the time of their occurrence appear to be *real,* and which seem to be taking place actually in the *present,* and whose illusory or unreal nature is only *subsequently* recognized. We thus have three distinguishing characteristics of the dream experience:

(1) The dream events are perceived as *real* events during the dream;
(2) The temporal locus of the dream experience is the *present;*
(3) The illusory of hallucinatory or "dream-like" status of the experience is not revealed until later when our waking or more integrated perceptions reveal the incongruities of the dream perceptions.

On the basis of these criteria we can distinguish oniric phenomena from allied processes such as day-dreams, passing fancies, and other imaginative experiences. The latter are regarded "as if" they were real. . . .

. . . the grotesqueness and ridiculous illogicality of many dreams is not what renders the phenomena "dreams." . . . dreams may be matter-of-fact, commonplace perceptual experiences and still be full-fledged dreams provided the experiences are characterized by the three designated criteria. . . .

. . . the criterion of grotesqueness cannot be considered a fourth indispensable characteristic of the dream experience. A fourth criterion of this kind would be irrelevant and misleading. The dreams obtained during hypnosis appear to fulfill the essential criteria mentioned. They deal with events that the subject regards as "really" taking place at the time of the experience. The events are being "lived through" right then. Only later is their unreality recognized by the subject. Because of these considerations, we feel justified in regarding the hypnotic dream as belonging in the same category of mental processes as the ordinary night dream.

Chapter II

DESCRIPTION OF THE METHOD

With certain exceptions to be mentioned subsequently, the subjects selected for hypnosis were kept in ignorance of the nature of the experiment. Only one of them had ever been hypnotized before. The others were not told that hypnosis was to be employed and after being aroused at the end of the first session some of them were astonished at having "fallen asleep." For the most part they were students of elementary psychology who had volunteered to serve as subjects. . . . To allay their curiosity they were informed the main purpose of the experiment was to ascertain the relative efficacy of various methods of bodily relaxation. In this way any influence attributable to suggestion in the waking state was eliminated.

. . . hypnosis was induced by means of visual fixation and by verbal suggestion. Upon being assured of the genuine hypnotic status of the subject as indicated by his inability to open his eyes and to pry his clasped hands apart when the appropriate counter-suggestions had been given, he was told to "relax and sleep for a few minutes." In doing so he was usually made to rest his head on his arms which were placed on the table in front of him. This preliminary "sleep," lasting from one to two minutes, seemed to facilitate the subsequent dreaming although it was by no means essential. During this interval the experimenter was enabled to communicate with a stenographer concealed in the room whose presence was unknown to the subject. The purpose of the stenographer, . . . was to obtain a verbatim record of the subject's report. . . The initial "sleep" period enabled the stenographer to learn the name of the subject and the sequence of the stimuli to be employed as well as to note other relevant items the experimenter deemed necessary.

The subject was now told to sit up but to continue sleeping and the following instructions given:

I want you to watch very carefully for any dreams you might have and as soon as the dream is over tell me all about it. This formula was modified in its wording occasionally but the essential suggestion was invariably incorporated. One of the stimuli, to be described presently, was then presented. Each stimulus was made to act for approximately ten seconds. If the subject failed to respond spontaneously after two minutes, he was asked, "Did you have a dream?" It was found that often the subject had a dream to report, but was waiting to be asked to tell about it. Accordingly, in our later work the suggestion "Don't wait for me to ask you about it, but tell me about the dream as soon as it is over" was added to the formula of instructions. In this way it was possible to measure the duration of the dream by means of a stop-watch. This time-measure was not secured for all the dreams as the suggestion to describe the dream immediately upon its termination was not always effective, the subject remaining silent until asked about the occurrence of a dream. Usually, however, once the subject began to act on this suggestion to report the dream at once without waiting for special prompting, he continued to do so. After telling about the dream in this spontaneous fashion the subject was questioned by the experimenter on any particular phases of the dream requiring further description. The subject was then told to "sleep some more" and after the lapse of from twenty to thirty seconds, the time necessary to prepare the next stimulus, the suggestions to watch for a dream and to describe it immediately after its experience were repeated and the next stimulus was applied.

In the case of some subjects it sometimes happened that they "woke up" before the experimental work of the day had been completed. To speed up the task of hypnotizing them again a post-hypnotic suggestion of an arbitrary sort, such as snapping the fingers after counting from one to five, was made as a routine suggestion as soon as the subject was hypnotized. . . . By this means much time was saved both during the laboratory period in those few instances where the "dream" seemed to arouse the subject, as well as in inducing hypnosis on later occasions when the subject returned to the laboratory for another experimental session. Just prior to the termination of each such session the post-hypnotic suggestion was repeated in case the given subject was to serve as observer on a later date. The stimuli that had been employed during the experiment were always moved to one side before the subject was awakened. He was then questioned regarding his recall of events experienced and reported during hypnosis. In this way data on the accuracy of recall of dream content was obtained.

The stimuli introduced varied with the particular phase of the dream problem under consideration at the time. . . . Most of the work was done with the following stimuli:

1. Small bottle of creosote held in front of the subject's nose for about ten seconds.

2. Sound of tuning fork (100 vibrations) applied to the right ear of subject for about ten seconds.
3. Application of circular piece of metal (cold), 2.5 centimeters in diameter, to middle of forehead for about ten seconds.
4. Stroking back of right hand with absorbent cotton for about ten seconds.
5. Small bottle of perfume held in front of subject's nose for about ten seconds.
6. Pinching back of right hand between thumb and forefinger with small calipers—three pinches within a ten second interval.
7. Sound of organ pipe (G)—three blasts within a ten second interval.
8. Subject is made to handle ordinary wax candle by grasping it with his right hand and holding it for about ten seconds.
9. Bottle of asafoetida held in front of subject's nose for about ten seconds.
10. Subject is made to handle small cardboard triangle covered with absorbent cotton and required to hold it in his right hand for about ten seconds.

In addition to the foregoing stimuli, some of which, . . . were used to obtain a direct check on Freudian symbolism, an unambiguous type of sex stimulation was used occasionally as a still more cogent bit of evidence along the same line of investigation. This form of stimulation consisted of a gentle stroking of the subject's trousers over the genital region by means of a ruler, the stimulation continuing for about ten seconds. . . . this particular stimulus will hereafter be referred to as the *genital stimulus.*

At times stimuli somewhat different from the foregoing were tried merely to ascertain the scope of the method. This applies particularly to the use of single words spoken to the subject. The latter approach was intended to determine the suitability of the method as a means of evaluating the free association technique of dream analysis as advocated notably by Jung.

In certain minor aspects this general method of procedure was not always rigidly adhered to when particular problems made a departure from the routine advisable. This applies more specifically to the change introduced when the possible effect of the bodily posture on the dream process was made the object of some preliminary experiments. On these few occasions the subject was made to stretch out on an army cot instead of being seated during the experiment. Wherever such changes were introduced appropriate mention of them will be made in connection with the results. On a few occasions the dreams were taken down in long hand and not stenographically. Where this resulted in a paraphrase of the dream instead of its verbatim report, this fact will be noted when the dream in question is being discussed.

Most of the results incorporated in this monograph were secured from eight subjects. Two of them were young women and the others young men. With the exception of one of the latter all the subjects were university students. The one exception, Dr. X, is a member of the teaching staff and a competent psychologist. He was requested to serve as a subject so that any source of error due to the psychological immaturity of the observers might be revealed.

. . . fellow-psychologists were frequently invited to be present during the experiments and urged to be rigorously critical of the procedure. In this manner some valuable suggestions were secured . . . with reference to the problems under investigation. . . .

Chapter III

SOME EXAMPLES OF HYPNOTIC DREAMS

By way of illustrating the richness and variety of the dreams obtained by this method the following examples . . . are introduced here. In those instances where the duration of the dream was obtained the time is indicated in parentheses at the beginning of the dream recital. . . this time refers to the interval from the initial presentation of the stimulus to the instant the subject started his spontaneous account of the dream. . . .

Dream 1. Subject: J. M. X., young man, university sophomore, . . .

Stimulus: Stroking right hand with absorbent cotton for about ten seconds.

Dream Response: "A cow licked me on the hand."

Q. Is that all you can tell me? *A.* Yes.

Q. Tell me more about the cow—what color it was—where you were. *A.* I was sitting down, and the cow reached over my shoulder and bit me.

Q. Did she bite you? *A.* No. She licked me.

Q. Could you see the cow? *A.* (Mumbles something in the way of assent.)

Q. What color was she? *A.* Brown with blue horns.

Q. What else? *A.* That's all.

Q. What hand did the cow lick? *A.* On the right hand.

Q. And what did you do when the cow licked your hand? *A.* Didn't do anything.

Q. Did you recognize this cow? *A.* No.

Q. Oh, it was a strange cow. Where was it? *A.* It was in the field.

Q. Do you know what field it was? *A.* No.

Q. Didn't seem familiar? *A.* No.

Q. Did you really believe that the cow licked your hand or did you just dream or think that it did? *A.* I just thought so—I don't know.

Q. Do you think it was a real cow? *A.* Yes.

Q. You really saw those blue horns or did you dream that? *A.* No.

Q. What—no? *A.* I saw them.

Dream 2. Same subject.

Stimulus: Bottle of asafoetida held to nose for about ten seconds.

Dream response: "Smelled something dead—a horse—a dead horse."

Q. What else? *A.* He was just dead.

Q. Where was this dead horse? *A.* He was on the ground.

Q. How do you know he was dead? *A.* He was decomposed.

Q. How do you know? *A.* I could see it.

Q. What did it look like? *A.* His stomach was all out.

Q. What else? *A.* That's all.

Q. Could you only see it? *A.* I could smell it.

Q. What color was this horse? *A.* The skin was pulled up. It was brown.

Q. Anything else? *A.* He had a right front foot.
Q. Where was this? *A.* It was in some bushes.
Q. Where? In the country? *A.* Yes.
Q. Whose horse was he? Do you know? *A.* No.
Q. What did you do when you smelled him? *A.* Just walked on by.
Q. You really had this experience or* did you dream it or think it? *A.* I smelled him.
Q. Did you see him too? *A.* Yes.
Q. Are you positive about that? *A.* Yes.
Q. This wasn't a dream? *A.* I don't know.
Q. You think this could have been real—that you really saw and smelled him? *A.* Yes.

Dream 3. Same Subject.

Stimulus: Pinching back of right hand between thumb and forefinger with small calipers—3 pinches within a ten-second interval.

Dream response: "A rat came out of a hole in a corner. He bit me."

Q. What else? *A.* That's all.
Q. Where did he bite you? *A.* Bit me on the hand.
Q. Point to the spot where he bit you. (Points to it.)
Q. How many times did he bite you? *A.* I don't know.
Q. Don't know? *A.* No.
Q. What color was the rat? *A.* Black.
Q. Could you see it? *A.* Yes.
Q. What did you do when the rat bit you? *A.* I moved my hand, and then he went back in his hole. (Didn't actually move hand.)
Q. Did you yell? *A.* Yes. (No yell heard.)
Q. Where were you? *A.* I was on the floor.
Q. Who was on the floor? *A.* I was.
Q. Where? *A.* In a room.
Q. What room? *A.* At home where I study.

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*Questions of this kind dealing with the reality of the dream experience referred to the subjects' reactions to the dream events as they occurred in the dream. As might be expected, many of the dreams also represented "real" events of the subjects' waking life while others had no such realistic background.

Q. Where do you study? *A.* Where I live.
Q. Here in Austin? *A.* Yes.
Q. Did you actually see it and feel it? *A.* I saw it.
Q. Could you feel the bite? *A.* Yes.
Q. You didn't dream this? *A.* No.
Q. You're sure? *A.* Yes.
Q. Did your hand bleed where he bit you? *A.* No.
Q. Sure it didn't bleed? *A.* No, it didn't bleed.
Q. Were you afraid? *A.* No.

. . . Even a casual appraisal of the dream material obtained during hypnosis as exemplified by the sample cases just presented will suggest the rich experimental potentialities of the method. . . . we feel confident repetition of the experiments by others will result in confirmation and that no drastic modification of the results will be required. This is particularly true of our central thesis regarding the validity of this technique as a means of eliciting genuine dreams.

While additional evidence for the tenability of this thesis will be presented in subsequent chapters, the evidence indicated by the foregoing examples should be stressed here. Analysis of the latter as well as similar study of the hypnotic dreams not yet presented shows most clearly that the criteria of the dream process are fulfilled in all respects. The subject invariably reports an experience of realistic vividness, whose reality is accepted at the time of its occurrence. The experience in question always takes place in the "present" even in those cases where the dream has to do with events dating some years back in the subject's life. Occasionally, it is true, the subject is not quite certain whether the experience "really" took place, but this very uncertainty we believe is what renders even these relatively rare cases dream experiences. There is always a feeling of reality or a halo of reality attaching itself to the experience in question. The illusion of reality, in other words, varies in degree both in the hypnotic dream as well as in the ordinary night dream, but it is always present in some amount. As one of the subjects worded it after waking from hypnosis: "All these dreams seemed real, only some of them were more realistic than others." In fact, . . . there is a decidedly convincing unanimity of opinion among the subjects regarding the "realness" of the hypnotic dream experiences.

Comparison of their testimony given after waking fails to disclose a similar unanimity of opinion concerning the relationship between the dreaming during hypnosis and the dreaming during sleep. All of them seemed to agree that the term *dream* is legitimately applicable to the just experienced hypnotic episodes. What bothers them, though, is the question, "Would you say that these dreams are the same as those you have at night when you're asleep?" Some subjects regard them as the same, but others report them as different because they were "not exactly asleep." This latter difference, in other words, does not appear as a difference in the dream process so much as a difference in the concomitant setting serving to differentiate hypnosis from actual sleep. We have some evidence, suggestive rather than conclusive, indicating that this difference may be a function of the depth of hypnosis. In the absence of any reliable measure of such variations in depth we had to rely on rather crude, somewhat impressionistic indications of the extent of dissociation. In general, where there was considerable post-hypnotic amnesia, catatonic rigidity or an associated phenomenon such as *flexibilities cerea,* the subject would report essential identity between the dream experiences in hypnosis as contrasted with sleep. Where the dissociation seemed more superficial the designated difference of "not being exactly asleep" was pointed out.

Chapter IV

FREE ASSOCIATION AND THE HYPNOTIC DREAM: A CONTROL EXPERIMENT

Very early in the course of our accumulation of hypnotic dreams the conviction that we were dealing with a somewhat unique mental function became ever stronger. . . . this uniqueness, upon analysis, proved to be precisely that which confers upon the ordinary night dream those differentiating characteristics responsible for its oniric status. Furthermore, in addition to the previously stressed differentiating characteristics having to do with the temporal locus and realistic nature of the dream, two other salient features of the hypnotic dream impressed us. Time and again the subjects would report an inability to specify what had caused the particular dream under consideration at the moment. Stated otherwise, they were apparently oblivious of the instigating stimulus. They also reported a peculiar suddenness of onset and an equal suddenness of termination with reference to their dreams. . . . in some respects our instructions to each subject were not very different from those governing the traditional experiment in free association. After all, suggesting to an individual that he report whatever dreams he may have is somewhat analogous to requesting him to report whatever thoughts come to mind. And yet despite this manifest similarity we were getting something quite different from the ordinary associative sequence. Whether this difference was to be attributed exclusively to the induced dissociation or whether it was solely a function of whatever mental set may be established by the suggestion to dream, or whether both of these factors were jointly responsible, constituted a problem calling for experimental investigation.

Several experimental sessions were, accordingly, devoted to this task. At these the subject was confronted with the same procedure followed on previous occasions except that hypnosis was not induced. He was told to close his eyes and report any dreams experienced. The suggestion to dream was made just prior to the presentation of each stimulus. In this manner the need for the dissociation in the production of the dream phenomena was subjected to experimental confirmation. The efficacy of the dream *Aufgabe* when established in the waking state was, of course, subjected to similar test.

Three subjects were used in this work. Two of them also served in the regular experiments involving hypnosis, but the third was a graduate student in psychology, a meticulous and conscientious observer, who had not proved a favorable subject for hypnosis. One of the three, Dr. X, being a psychologist, was particularly well-qualified to pass judgment on the issues under consideration.

It was patent from the first that nothing akin to the responses obtained during hypnoses was being secured by using our routine suggestions in the waking state. All of the subjects reported the absence of any vestige of dream-like processes. One of them, W. J., tended to associate each stimulus with events which figured rather prominently in his hypnotic dreams, but it was in the form of mere association as opposed to genuine dreaming. He made this distinction himself quite clearly and spontaneously. After he had responded to fifteen stimuli, including the ten used during hypnosis, we said to him, "You had what we've been calling dreams on different occasions. Would you describe these as the same?" He answered this question as follows:

"I wouldn't think so. This morning I realized what you were doing. This morning these stimuli would bring to my mind more than one thing. One would follow another."

On another morning when this control experiment was repeated he put this matter even more clearly by saying:

"I realize this time that it was an outside stimulus, and the picture that was presented wasn't as clear as it was in my dream. I wouldn't call this morning's experience a dream. It is just an association of ideas with an outside stimulus. . . . It's not what I would call a dream. In my idea it is not specialized enough for a dream. By 'specialized' I mean that it centered on one thing."

He further stated that on previous occasions he did not know what was going on. "I didn't realize, as I did this morning, what was happening," was the way he formulated this. He also volunteered the information that during the morning's experiment each of the stimuli brought a multiplicity of what he called "thoughts" to his mind, while on previous occasions "it was just that one thing" obtruded itself. Another distinction he made had to do with the control of the experiences: "The ones this morning—I would think of those things immediately after the stimuli. I could have averted the thought if I wanted to. Under the other conditions, I couldn't have." There was thus an evident difference in the coercive dominance of the events aroused by the stimuli during hypnosis as contrasted with their effect on the waking subject.

About an hour after W. J. had reacted to these stimuli in the waking state, he was hypnotized again and some of the latter stimuli were repeated. The fact that he was presumably acquainted with the stimuli seemed to exercise no effect on the resulting dreams for they were of the same character as those obtained prior to the association experiment. The subject's first remark upon being awakened was, "I seem to have a dreaming complex." To illustrate the differences between what he called the "thoughts" obtained during the earlier experiment and the "dreams" elicited during the later, the following responses to the stimulus of applying a circular piece of metal to his forehead for about ten seconds may prove helpful:

Response During the Waking State: "That brings thoughts of cold weather and my face being cold—my head. It brings pictures of snow and winter conditions."

Response During Hypnosis: "It was cold. It was cold weather. I was all wrapped up. Cold wind was blowing from the north. It was almost misting, and my face was cold and my forehead was cold. I was walking toward the wind and it seemed there was almost a wall that was holding me back. It was cutting."

. . . In the case of Dr. X, our third subject, further corrobration of these distinctions was secured. . . .

But to return to the problem of considering the differences between the waking and hypnotic experiences in the case of this subject, the definite way in which he focussed his attention on the stimulus in the one case as opposed to the other might first be stressed. His responses during the waking state were all in terms of identifying the stimulus. As he put it, they were "perceptual" in character. For instance, in the case of the genital stimulus, he reported:

"I know it's a ruler because of the sound it makes as it brushes against my clothes. I was merely tickled—using the latter word in the correct sense."

. . . during hypnosis this stimulus had resulted in the dream of the girl with the dog straining at his leash.

To cite another example of this difference: his dream when the tuning fork stimulus was used had to do with the vivid experience in the submarine when the oscillator signal was heard. . . . The same stimulus applied in the non-dissociated state resulted in the immediate recognition of the stimulus, the subject's verbatim reply being:

"Tuning fork. And I had the funny association of a moth. I don't know why, but I think of a moth buzzing 'round an arc light."

Numerous examples of this difference might be added, for it characterized every one of the stimuli employed, but such addition would be in the nature of tedious repetition. The control experiment showed most unmistakably the futility of endeavoring to reproduce the characteristics of the hypnotic dream by waking suggestion.

Both J. W. and Dr. X were certain of the fact that the experiences during the control experiment were very dissimilar from those during hypnosis. This certainty taken in conjunction with the clear-cut differences of the reactions in the two series of experiments furnishes rather cogent evidence of the legitimacy of the distinction between the two sets of experiences. The one is not to be confused with the other.

Unfortunately, we are not yet equally certain regarding the need for the instructions to dream within hypnosis, although the evidence so far obtained seems to indicate that without such a mental set dreams fail to take place. . . . We know that sometimes, especially right after hypnosis has been induced, the suggestion to dream fails to be effective. In these cases, by the time the third or fourth stimulus is presented, particularly if the subject is permitted to "sleep" for one or two minutes without any interruption at all, the dreams will be forthcoming. We have interpreted this to mean that the dissociation has become more complete, but as yet lack any convincing data by means of which to support such an interpretation. On those occasions when we designedly omitted to give the suggestion to dream after hypnotizing the subject, we failed to get any dreams. At these times we merely instructed the subject to watch and report what happens, and would then introduce the stimulus. Although we have tried this but a few times, the subject's reply was always a description of the sensory consequents of the stimulus, such as "I hear a buzzing sound" in the case of the tuning fork. Or when the hand was stroked with cotton, the subject reported "feeling something on my arm; it felt like wool." Results such as these make it seem likely that the mental set to dream must be aroused during hypnosis if the dreams are to be obtained. . . . What we are not yet at all certain of is the need for repeating the suggestion to dream before the presentation of each stimulus after the suggestion has been effective for previous stimuli. In other words, we have still to tackle the problem of the perseverative character of the dream *Aufgabe*. Along with this problem we have the closely related one of ascertaining more precisely the intimate nature of this presumed mental set. . . .

At all events, to summarize the import of the control experiment proper, it is clearly established that the characteristics of the hypnotic dream are peculiar to the hypnotized subject. Without such dissociation the dreams are not secured, even though the routine technique for producing them is carefully followed. The phenomena obtained during the waking state lack the circumscribed definiteness, the realistic and temporal peculiarities characteristic of the hypnotic dream. They also lack an additional characteristic of the dream; namely, the merging of the stimulus within the dream pattern. . . .

Chapter V

THE HYPNOTIC DREAM AS A PSYCHOLOGICAL INSTRUMENT: SOME EXPERIMENTAL FINDINGS

In many respects we regard the chief merit of this method to be its promise as a useful psychological tool, . . . we mention it here to guard against a misinterpretation of the findings presented in this section. Some of them are intended to be tentative and not at all final. Our sole justification for introducing them is the support they lend to our confidence in the hypnotic dream as a methodological instrument. . . .

One of the most interesting of the long-standing psychological questions we endeavored to answer by means of our technique was the problem of the *typical dream*. . . . The first of such typical dreams we tried to produce was the . . . dream of falling or flying. . . . We reasoned that a typical dream must have a very common-place and frequently recurring stimulus, otherwise it would be rare and not a typical dream. . . . It also seemed . . . that the stimulus for the falling dream must in some way be an integral part of the experience of having one's bodily equilibrium disturbed. . . .

The first person we tried this out on was a young girl who was completely uninformed regarding the nature of our experimentation. She accepted our plausible explanation of studying the relative efficacy of various methods of bodily relaxation. After inducing hypnosis we had her lie down on an army cot in a comfortable position with her head resting on a pillow. As she was resting on her back in this way we first used some of our routine stimuli and obtained rather interesting dreams. . . . We then as always, repeated our suggestion, "Now again if you should have a dream I want you to watch it very carefully and tell me about it as soon as it is over." This time we introduced our supposed stimulus for the falling dream for the first time. It consisted specifically of a sudden pressure on the cot near her ankles and made for a slight inclination of the body, the feet being momentarily lower than the head. The dream response proved so amazing and unexpected a confirmation of our theory that we cite in detail:

Q. Did you have a dream? *A.* Yes.
Q. What was it you dreamed? *A.* I dreamed I was sliding down—sliding down a shoot-the-chute.
Q. Could you feel yourself sliding? *A.* Yes.
Q. Were you going down head first? *A.* No, feet first.
Q. Were you sitting up? *A.* No.
Q. Could you feel yourself go down? *A.* Yes.
Q. Did you go straight or which way? *A.* It was the way the shoot-the-chute goes.

. . . we repeated this type of stimulus during the experimental period and varied its location each time. We were struck by the way in which the dream of falling changed with such variation. For example, a slight pressure on both sides of the cot at the level of the waist resulted in a dream of being shoved under the water. Unilateral pressure on the left side of the cot produced a dream centering around an automobile wreck she had been in some eight or ten months before. The following laboratory notes of this dream is worthy of note:

Q. What did you dream about the wreck just now? *A.* We fell off a 18-foot bluff.
Q. Were you hurt? *A.* Yes.
Q. Did you live through it again just now? *A.* Yes.
Q. Did it seem real to you? *A.* Yes. (Placed hand over heart and sighed.)

Q. Did you feel yourself land or were you unconscious? *A*. I could feel myself falling, falling, falling.

After trying three other stimuli unrelated to the falling dream, and getting dream reports on them, we reverted to the typical dream in question and applied the stimulus of pressure on the right side of the cot at about the level of the subject's waist again. This time she responded (39 seconds):

I was falling, falling, falling down a mountain. Isn't that funny?

Q. What else? What were you going to tell me about the fall? *A*. I landed in town and how!

Q. Did it hurt? *A*. No.

Q. Did you fall a long way? *A*. I fell from the top of the mountain. It seemed real pleasant.

Q. Did you land on your feet? *A*. No, on my side and I thought daddy said something about it.

Q. Was he with you? *A*. No, but he said it was the way monkeys used to do.

Q. Did this really happen or did you dream it? *A*. No, it really happened.

Q. Did you tell your dad about it? *A*. Yes, when I got home.

Q. From where? *A*. Seemed like I was on a trip and when I got home I told daddy about it. It doesn't seem clear.

Q. Is that all? *A*. Yes.

Incidentally, this subject upon being awakened and asked about the foregoing dreams testified that she realized she had been dreaming. Concerning the one dealing with automobile accident she stated she had dreamt about it three or four times in her night dreams, "but this one seemed more real, just as though it had just happened."

These falling dreams were not unique to this particular subject nor were they due to an inexplicable coincidence, for when the same kind of stimulus was applied to one of our other subjects the expected typical dream was forthcoming. . . .

It may well be, of course, that other stimuli may result in such falling dreams. All that we contend is that the particular stimulus in question can be *experimentally* demonstrated to result in such dreams. . . .

An effort was also made to secure the well-known dream of appearing in public inadequately clad, but as yet, we have not met with success. Among other possible stimuli for this dream we resorted to the obvious one of throwing off part of the clothing and exposing the skin. . . .

Another phase of psychoanalytic doctrine we endeavored to approach experimentally was that of the relative frequency of sex dreams. . . .

. . . in our selection of stimuli we deliberately chose some having direct sexual implications in terms of Freudian symbolism. Both the candle and the cardboard triangle covered with cotton were intended to serve as phallic symbols. In addition, what we have already described as the genital stimulus was used as a less ambiguous stimulus of the same sort. It was also hoped the olfactory stimulus of the perfume would serve to incite some amorous associations. Sometimes we even went so far as to kiss the subject on the back of the neck or on his forehead, or to stroke his hair by way of stirring suppressed erotic proclivities to vicarious satisfaction or expression in the dream. We even included such verbal stimuli as "love" or the name of some member of the opposite sex in whom the subject was known to be interested. If anything, our list of stimuli was weighted unduly in the direction of the sexual so that on *a priori* grounds we were justified in expecting a preponderance of sex dreams in our experiment. In strict justice to the Freudians it should be stated that we are using the term *sexual* in its ordinary and traditional sense and not in the less restricted psychoanalytic sense. . . .

At the present moment we have 171 hypnotic dreams recorded. In an endeavor to ascertain what percentage of this total might be regarded as sexual we . . . classified every dream in which a member of the opposite sex appeared, no matter how innocent the appearance, as a sex dream. By using such a generous criterion of the sexual, we got a total of 34. This means that almost 20 per cent of the dreams might be construed as sexual if every dream in which a person of the opposite sex appears is regarded as a sex dream.

On the other hand, if we limit our criterion to those dreams in which an erotic or quasi-erotic element figures, such as being kissed, holding hands, going on a journey with a sweetheart, the number of sex dreams is reduced to 15. The latter and under the circumstances more conservative estimate makes the percentage of sex dreams slightly less than 9 percent. On the basis of this calculation we venture to say, as a first approximation, that the chances are that not over 10 per cent of dreams are sexual, and even this estimate may be too high if the word sexual is limited to a direct physiological connotation. . . .

Chapter VI

THE REDINTEGRATIVE NATURE OF THE HYPNOTIC DREAM

. . . this investigation of dreaming during hypnosis was initiated in the hope of finding a convenient pedagogic means of demonstrating Hollingworth's concept of redintegration in thinking. This hope was realized far more adequately than we had anticipated. . . . Consider, for the sake of illustration, the following dream responses to the stimulus of stroking the right hand with cotton for ten seconds:

Subject W.J.: (48 seconds) "Then I was in bed and my girl came to see me. She was sitting by the side of my bed, and she was holding my hand—caressing it with hers. She was rubbing my hand with hers. I was in the hospital. She came to see me that night. She was on the right side of my bed holding my right hand. She stayed a long time—until it was time for all the visitors to go home."

Subject Dr. X: (12 seconds) "I feel a big shaggy dog rubbing against me and it gave me a sort of a panicky feeling. I don't know where the dog came from." The dog was a gray poodle who touched the back of his right hand. He could not see him move, but, as the subject worded it, "I felt him; he leaned against me and moved his shoulder against my hand."

Subject Miss C. M.: "I thought I was playing with the angora cat across the street." It was a yellowish cat and she could feel its fur with her right hand. The cat was rubbing against her more on the arm. "He just walked up against me and rubbed against my arm."

. . . In each of the foregoing dreams a moving tactual stimulus served to redintegrate . . . less complex consequents of which the rather fragmentary instigating stimulus had once been a constituent part. It is difficult to give an adequate characterization of the dramatic effectiveness of this technique as a means of demonstrating the mechanism of redintegration. Verbal description fails to do justice to the inescapable feeling of conviction the observers experience as they witness the subject reporting his dreams. There are respiratory changes, shifts in muscular tension, variations in facial expression, and above all the modulations of the voice in describing the dream episodes that make for a cumulative effect in the direction of carrying conviction regarding the genuine occurrence of the phenomena. Only actual duplication of this technique will serve to indicate exactly what we have reference to, as well as to verify our findings in general. . . .

There are numerous other ways in which this technique may be applied to specific problems of redintegration. In many respects, from the point of view of systematic psychology, we regard such application as the more significant aspect of the technique, the application to dream phenomena *per se* being interesting but less important. Certainly, even the beginnings of such application as we have sketched in this chapter serve to demonstrate the facile way in which Hollingworth's approach to the psychology of thought receives experimental confirmation when the dream process is subjected to *controlled* variation. In fact, it seems to us, that even these preliminary findings justify one in regarding the hypnotic method of producing dreams as essentially a redintegrative tool. The method not only verifies the principle, but widens its sphere of influence from that of a stimulating explanatory and descriptive formula to a genuine contribution to the armamentarium of the experimental psychologist.

Chapter VII

SUMMARY AND CONCLUDING CONSIDERATIONS

On the basis of the evidence accumulated during our experimental studies of dreaming during hypnosis, the conclusion that such dreaming is the same in kind and mechanism as ordinary night dreaming may be regarded as unequivocally established. This conclusion is supported by the extent to which hypnotic dreams conform to the criteria of ordinary dreams, by the testimony of the subjects, and finally, by the facility and regularity with which such a typical dream as falling may be elicited and controlled during hypnosis.

If a dream be defined as an illusory or hallucinatory experience which at the time of its occurrence is accepted as a real and genuine experience taking place in the present, as opposed to the past or future, then the dreams obtained during hypnosis must be regarded as belonging in the same category of mental processes as the customary dreams experienced during natural sleep. Direct examination of the hypnotic dreams fails to reveal any additional characteristic that would serve to differentiate them from non-hypnotic dreams. Furthermore, the evidence obtained in this way is substantiated by the judgments of the subjects in that they unhesitatingly identify their experiences during hypnosis as dreams. Their attitude toward such dreams is the same as their attitude toward night dreams.

In addition the fact that such a widespread and oft-reported dream phenomenon as the one of falling can be duplicated by means of our hypnotic technique furnishes rather cogent experimental evidence of the validity of our fundamental contention. In thus demonstrating a feasible and readily controllable means of producing dreams a hitherto refractory field of psychological investigation is taken out of the speculative realm and brought within the bounds of experimental inquiry.

Our preliminary survey of the methodological usefulness of this technique has shown with what effectiveness longstanding problems may be rendered amenable to satisfactory experimentation. Incidentally, our control experiments sufficed to indicate the futility of seeking to arouse dream phenomena in the waking state. They are indubitably a product of the dissociated status characterizing both sleep and hypnosis. But reverting to the question of the methodological implications of our technique, the evidence presented in the foregoing chapter points to the fact that this technique possesses promise of wide usefulness. In an endeavor to give positive expression to such potential usefulness the technique was actually applied to a somewhat heterogeneous array of problems. The results secured justify the following succinct formulation:

1. Hypnotic dreams can be elicited by stimuli embracing a wide range of sense modalities.

2. Verbal stimuli serve as effective instigators of hypnotic dreams.

3. As indicated by the dream responses recorded in the third chapter, the problems of transformation of imagery type, qualitative analyses of dream contents and other problems of interest to the structuralists may seemingly be solved by means of our technique.

4. A stimulus for the typical dream of falling was demonstrated to be a passive and sudden downward shift of a bodily part as the sleeper alters his position on a yielding surface such as a mattress or pillow.

5. The direction of the fall was shown to vary with the locus of the shift thus making it possible to predict and control the dream to that extent.

6. Recurrent dreams were shown to fit Hollingworth's explanation of their nature and to be readily aroused by means of the hypnotic method.

7. The possibility of utilizing this technique in an experimental attack on Horton's dream theory was illustrated by some preliminary experiments along this line which suggested eventual confirmation of Horton's view.

8. Measurements of the duration of dreams served to indicate, as a first approximation, that the average time may tentatively be regarded as about half a minute.

9. The reality of dreamless sleep being an amnesic phenomenon, at least for some persons, was experimentally demonstrated.

10. Recall of hypnotic dreams immediately after waking failed to show any perceptible distortion or displacement of the events described during hypnosis.

11. The Freudian doctrine of the preponderance of sex dreams was found untenable when subjected to experimental check, our preliminary findings indicating that very likely not more than 10 per cent of dreams may be so classified in any legitimate fashion.

12. Hypnotic dreams were shown to be splendid illustrations of the redintegrative mechanism as described by Hollingworth.

13. The usefulness of the hypnotic dream technique in subjecting the concept of redintegration to experimental investigation was demonstrated by:

    (a) Simultaneous presentation of dream stimuli, and
    (b) Successive presentation of dream stimuli.

14. The possibility of investigating the problem of differences in instigative potency of redintegrative stimuli was shown in connection with the preceding type of investigation which brought the following kinds of redintegrative consequents to light:

    (a) Fusion or synthesis of dream patterns;
    (b) Dominance of one pattern over the other, and
    (c) The possible neutralization or cancellation of customary dream patterns.

15. The potential usefulness of the technique in isolating out the focal experiences inextricably merged in the stream of highly integrated thinking was also suggested and its bearing on Hollingworth's approach to the cognitive processes was indicated.

This summary of results already secured by the experimental production of dreams augurs well for the future applications of the method. There are a multiplicity of problems we have not yet sampled by our method and much more remains to be accomplished. It is to be hoped other workers will undertake the task of applying the technique to many of these problems. We have no doubt . . . that such application will necessitate revision of some of our preliminary results. But we feel confident the essential and basic thesis with which this monograph is concerned will suffer no such revision. This thesis having to do with the deliberate production of dreams under controlled experimental conditions we regard, in the light of the evidence presented here, as being clearly established. To those whose skepticism is not yet allayed, we can only urge thorough-going duplication of the method in their own laboratories and on their own subjects.

No. 21

DREAMS AND HYPNOSIS*

Margaret Brenman

Since Schrotter's fragmentary, unfinished investigation in 1911, of so-called 'hypnotic dreams,' there has been a good deal of glib talk regarding the power of hypnosis to create dreams which, according to most researchers on this problem, are in all ways like spontaneous night dreams. The classic example, often quoted by Freud and by many others since, is that of Schrotter's female subject, presumably an unsophisticated person, who was told while in a deep hypnotic state to dream of having homosexual relations with a lady friend; she promptly reported a 'dream' in which the friend appeared, carrying a shabby traveling bag, on which there was a label with the printed words: 'For ladies only.' This was certainly a provocative outcome but scarcely proof that the response to a hypnotic suggestion to 'dream' is a psychological product comparable in all significant qualities to the condensed, delicately wrought content which issues from the dream work during sleep.

It is curious that investigators appear to have taken it for granted that the hypnotic suggestion to 'dream' actually issues in a dream. It is as if the belief in the magic power of hypnosis overwhelms the investigator as well as the subject and thus, when the subject responds with a production which often resembles a night dream, it is assumed without further question that there is no difference between the two. The hypnotist might as well assume that were he to command his subject to fly, the resulting activity, whatever its nature, could be called 'flight.' Assumptions of this sort preclude any fruitful investigation of the true nature of 'hypnotic dreams.'

We believe, from our observations, that varying depths of hypnosis involve significant and varying changes in ego functioning; moreover, it is likely that the suggestion to dream pro-

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duces further alterations. We are not in a position to study the precise nature of these changes, however, so long as we assume that our instruction has an inevitable result.

Before proceeding to a presentation of our preliminary hypothesis regarding the characteristics of the various forms of hypnotic 'dreams,' we must comment parenthetically on the fact that it is still an open problem as to whether even all night dreams have precisely the same structure, formal qualities and kinds of distortion. . . .

Freud's persistent doubt about the uniformity of psychic productions during sleep is further indicated: 'A dream without condensation, distortion, dramatization, above all, without wish fulfillment, surely hardly deserves the name. You will remind me that, if so, there are other mental products in sleep to which the right to be called "dreams" would have to be refused. Actual experiences of the day are known to be simply repeated in sleep; reproductions of traumatic scenes in "dreams" have led us only lately to revise the theory of dreams. There are dreams which by certain special qualities are to be distinguished from the usual type, which are, properly speaking, nothing but night fantasies, not having undergone additions or alterations of any kind and in all other ways similar to the well-known daydreams. It would be awkward, certainly, to exclude these imaginings from the realm of "dreams." '

In still another connection he says, 'Indeed the natural dreams of healthy persons contain a much simpler, more transparent and more characteristic symbolism than those of neurotics, which, owing to the greater strictness of the censorship and the more extensive dream distortion resulting therefrom, are frequently troubled and obscured, and are therefore more difficult to translate.'

We include these comments to suggest that it is probably a meaningless formulation to ask whether hypnotic dreams are the same as spontaneous night dreams, as if ALL hypnotic dreams have certain formal qualities in common which distinguish them as a group from *all* night dreams. We have observed in our hypnotic work that there is a great range of psychic production at the instruction: to dream. Perhaps such a range exists for the spontaneous night dream as well. . . .

From our preliminary study of the verbatim recordings of the productions of both normal subjects and patients we have the following impressions: (a) the response to the suggestion, 'You will now have a dream,' ranges from a slightly embellished reminiscence of an actual event to a production which at least on the surface resembles a classical night dream; (b) by and large, these productions employ 'primary processes' more than does normal, conscious, waking thought but less than does the 'typical' night dream described by Freud. It might be said that often the hypnotic dream is a kind of second-rate poetry in comparison to the tight, complex outcome of the dream work. Thus, although a wide range of phenomena appears, it may be said, from the point of view of the formal qualities, that the average hypnotic dream takes a position which is intermediate between the conscious waking daydream and the night dream, with considerable overlapping at both ends of the range. In spite of the many similarities to night dreams in the formal structure of some of the hypnotic dreams, it must not be forgotten that while the primary function of the night dream is to guard sleep, the motive power for the hypnotic dream derives from the need to comply, insofar as possible, with the expressed wishes of the hypnotist; thus to guard an interpersonal relationship. We do not yet know what all the implications of this difference are, but we can suppose that it will prove to be an important factor in establishing the differing dynamic roles of the two productions. Although we have not conducted experiments designed to test this problem, we can report that no one of our subjects reported anything remotely resembling a night dream if left to himself. The hypnotic dream, so far as we now know, does not occur spontaneously but only at the explicit or implicit behest of the hypnotist. Another significant difference lies in the fact that whereas one of the prerequisite conditions for night dreaming is the withdrawal of motor cathexes, the maintenance or withdrawal of motor cathexes for the hypnotized 'dreamer' is determined by the hypnotist.

With these important differences, there seem to be significant similarities between the hypnotic state and the state of consciousness which gives rise to spontaneous night dreams. In both there are significant alterations in the defensive and in the synthetic functions of the ego. It has been our observation, however, that these alterations in hypnosis are highly variable in different subjects and fluctuate a great deal from moment to moment (perhaps they do in sleep as well); they by no means imply an obliteration of ego functioning. Freud has compared the hypnotic state to a state preceding sleep. . . .

Although we are as yet unable to establish a strict continuum in the range of hypnotic dreams we offer a rough classification of these productions which will provide illustrations of their great variety. Before proceeding to these, a technical point of procedure should be clarified. Suggestions to 'dream' are given in many different ways. The most frequent techniques described in the literature are: 1, the subject may be told simply, 'Now you will have a dream'; 2, he may be posed a specific problem or topic about which to dream; 3, a posthypnotic suggestion may be given to have a night dream on a specific theme; 4, he may be asked to recall a repressed night dream; 5, he may be instructed to continue 'dreaming' where a night dream has broken off. We believe that all of these techniques are, in a sense, what Ferenczi called 'forced fantasies' brought about in an altered state of consciousness or, better, of ego functioning. We shall indicate in each of our examples which of these techniques was used.

First, an instance of the embellished *reminiscence* was produced by a woman of hysterical character who was being treated for symptoms of anxiety, depression, and multiple somatic complaints. She complained, while in hypnosis, of a pervasive sense of failure and deficiency in the ability to make people like her. She was given the suggestion to dream about this problem and reported: 'I saw two of my girl friends on the porch of my home. I was there too. I seemed to be about fifteen years old. They told me they were not going to come back that evening as they had planned, but would come another time.' This dull and rather banal response was not typical for this patient, who frequently reported highly condensed hypnotic dreams of a sort to be described later.

Another variety of response is the *static pictorial image*. The following examples are from the records of a middle-aged man with a well-compensated, compulsive character, who was being treated for torticollis. He was not deeply hypnotizable, but at the suggestion to dream in hypnosis he sometimes produced static pictorial images which he found startling. A surprising number of them dealt with his being gazed at intently. In one of the most striking he saw a vivid picture of a figure of indeterminate sex nailed to a cross, with head turned to the right and down, the same position into which the torticollis had twisted his own head. As he watched the figure, the head slowly lifted and the eyes fused into one which gazed at him intently and with great sorrow. The patient had not had, since early childhood, any interest in religion. This image, while it has a dreamlike quality, is relatively static and brief. In another such image he saw an owl watching him intently with great, wide eyes—'as though telling me not to be a fool'.

Still another level of production which appears to us distinct both from the reminiscence and the static pictorial image is the *quasi allegory,* a hybrid form, resembling the conscious daydream, but including, in a rather obvious and primitive fashion, some elements of unconscious symbolism. An example of this variety of hypnotic dream is taken from a case, recently reported by McDowell, of a veteran with the presenting symptoms of severe anxiety and ejaculatio praecox. This man was an unsophisticated person who, as far as is known, had no knowledge of the unconscious meaning of symbols. The production we will now describe occurred shortly after the disappearance of his ejaculatio praecox. He was told by the therapist that he would have a dream in hypnosis which would explain the meaning of his previous symptom of 'being like a jack rabbit' as he called it. The therapist left the room and when he returned the patient reported the following.

'There were long white stairs going up into the sky, as far as I could see. There were women lined up on both sides of the stairs. They were all reaching out for me as I was running up the stairs as fast as I could run, always running. At the top of the stairs is a beautiful girl with no clothes on, lying on a big, white, soft bed. I reached her, got into bed with her, "came" in a hurry and started running up the stairs again just like before. I looked back and she was still lying there with her arms raised toward me, looking disappointed, but I kept running.' This sequence is repeated several times, and he concludes: 'I got off the bed the last time and started walking.' Now all the other girls were gone, the beautiful woman was waiting and after he had 'calmly climbed the stairs, began intercourse calmly—no hurry. We were still doing it when the dream ended.'

There is a shallowness and transparency in this response which gives it a rather contrived flavor. At the same time, the presence of the classic symbol of ascending the staircase in this naive man links this production to the regressive, archaic night dream.

Still closer to the night dream is a variety of response which we will call the *quasi dream*. Our example is taken from the record of the analysis of a young hysteric. This young woman was possessed of an intense ambition to become a famous writer, having written many elaborate novels while working as a saleswoman. She came for treatment of 'spells' during which she became rigid and talked wildly. During the initial interviews she had been told by a young and inexperienced resident physician that if she wanted to be cured of her 'spells' she might have to give up her writing. Though dismayed by this prospect, she agreed to come for therapy. She was hypnotized occasionally during the course of the analysis, in periods of great resistance. In one such period, when it seemed that her unconscious competitiveness with the analyst as a defense against her strong passive wishes was fairly close to consciousness, she was hypnotized and told simply, 'You're going to have a dream'. Her response (in part) follows.

'I'm in a hospital bed . . . I like the room . . . it's not an ordinary hospital . . . it's way up high with a beautiful view . . . the walls are tinted pale green . . . I see the nurse's face or something . . . and it ought to startle me because her finger tips are gone . . . on the first two fingers, down to the second joint . . . and I was going to interrupt and tell the nurse . . . if it is a nurse . . . that part of her fingers are gone . . . but I hate to interrupt when they're talking ['they,' unidentified at this point] . . . so I don't say anything . . . they're talking pleasantly and I'm comfortable.'

She was asked directly, still in hypnosis, what she thought the dream meant; she could make nothing of it. Accordingly, she associated in the usual way, and it then appeared to the analyst that she was expressing both her wish for and her fear of the analyst's power over her, the specific threat to her own power being expressed in the symbol of the missing fingers, which on one level meant she could no longer type her novels, and would thus be deprived of her most important weapon. The dream was not interpreted, and she was given the posthypnotic suggestion to have a night dream which would embody the same meaning as this hypnotic dream. The next day she reported a night dream which seemed to state more clearly her intense defensive strivings for power. This was also not interpreted and again, on successive days, she was told to 'dream' in hypnosis, with the instruction that these 'dreams' would state even more clearly the same conflict (still not interpreted to her). Finally, she produced the following in hypnosis.

'I am sitting at a desk . . . a big desk . . . outdoors, looking down . . . I'm high up . . . looking down over beautiful scenery . . . there's a lake, a lot of trees . . . but no other person . . . just me . . . my desk is smooth and polished and large . . . I don't know how it got there.'

This seemed a simpler dream than the one about the missing fingers. Her associations in hypnosis made it clear that she was attempting to usurp the analyst's position. Her wish to be lofty and godlike, the *defense* against her passive needs and against her fears of helplessness now obliterated the wishes to be taken care of.

We have presented this series to illustrate two points: 1, this is a variety of hypnotic dream which seems fairly close in quality to night dreams; 2, that in such series there appears to be a progression either in the direction of accenting the defensive aspect of a conflict or, as we shall see in the next series, in the direction of exposing more sharply the underlying need or impulse which is being defended against.

A successful young surgeon, a morphine addict, who was gradually losing his practice because of his addiction, 'dreams' the following in response to the unstructured suggestion, 'You will now have a dream'. He is in the operating room, performing an extremely difficult appendectomy and executing it with the utmost delicacy and skill. He describes, largely with the present tense and with relatively little affect, all of the complications and his successful techniques of handling them, lapsing occasionally into the past tense and finally, in response to direct questioning, confirming our impression that he was embroidering an actual experience. This kind of production, while obviously meaningful and perhaps even potentially helpful in therapy, is a far cry from the rebuslike character of the night dream.

In a subsequent session, in response to the same unstructured suggestion to 'have a dream', he again produced an actual experience, this time, however, wholly in the present tense and with intense feeling. He re-enacted the birth of his son who had not begun to breathe spontaneously. Over and over he shouted, 'You've got to make it, Tommy! Breathe, boy! I'm gonna help you! You've just got to!' He went through all of the motions of holding the newborn infant up to his mouth and helping him to start respiration. Tears rolled down his face, and finally he announced (still in the present tense) that the baby had begun to breathe and that he knew he had saved him.

On the next occasion, given the same instruction, he reported a production of a different order. The following is an excerpt.

'I am falling asleep now and all of a sudden there is a monster, a terrible monster [voice choking with genuine panic] . . . I can't breathe, it's choking me, it wants to mash me to pieces [breathing with great difficulty] . . . on my chest . . . weighting me down . . . it's horrible, horrible . . . I must fight it . . . it's smothering me, what shall I do? . . . a terrible thing . . . great big body and lots of legs . . .' As he continued this *quasi nightmare,* he began to clench his fists and became frantic. Suddenly, he shouted, 'I want to fight it, I have to fight it, can I fight it?' [Therapist: 'Yes, you can'.] At this point he began to flail his arms in the air, still breathing with great difficulty, and finally gave a great lurch which landed him on the floor. As he hit the floor he looked around him in amazement, and somewhat sheepishly, no longer in hypnosis.

It is evident that these three productions, all in response to the suggestion to 'dream', are significantly different from each other not only in their manifest content, and in the degree of uncontrolled affect, but also in the degree to which primary and secondary processes are employed. It would appear also that there is a progression from the defensive position taken in the first hypnotic dream (where he denies his terror of helplessness by performing a delicate operation with utmost skill) to the second where the defense seems still in evidence, though somewhat shaky, in saving his child who cannot, at first, breathe; and finally to the third where there seems no longer to be any defense against the overwhelming anxiety associated with his feeling of helplessness and inability to breathe, an anxiety so intense that he breaks out of the hypnotic state altogether.

In the first of these two series (the hysterical girl), we see a progressively clearer statement of a defensive position, and in the second (the surgeon), a increasing disclosure of an underlying terror. Perhaps these progressions are analogous though not identical with the progression described by Freud in his discussion of dreams of the same night. He says: 'All dreams of the same night belong, in respect of their content, to the same whole; their division into several parts, their grouping and number, are all full of meaning and may be regarded as pieces of information about the latent dream thoughts. In the interpretation of dreams consisting of several main sections, or of dreams belonging to the same night, we must not overlook the possibility that these different and successive dreams mean the same thing, expressing the same impulses in different material. That one of these homologous dreams which comes first in time is usually the most distorted and most bashful, while the next dream is bolder and more distinct'. Freud does not discuss whether the increasing 'boldness' of the night dream refers only to the underlying impulse, or whether the defense may sometimes be clarified in this way also.

We cannot say from the preliminary survey of our material that this progressive clarification (whether of the underlying need or of the defense) is characteristic for hypnotic dreams in a series.

SUMMARY

We question the assumption that the hypnotic dream is a psychic production which duplicates, either in function or structure, the spontaneous night dream. We suggest instead that there is a wide range of response to the hypnotic suggestion to 'dream,' the average production having a structure which seems intermediate between the daydream and the spontaneous night dream, in that primary processes are used more than is common in waking thought, but less than in the typical night dream. We add further the tentative suggestion that hypnotic dreams in a series may progressively clarify either the defensive aspect of a conflict or the impulse (or need) which is being defended against.

Chapter VI

DREAMS AND PROJECTIVE TECHNIQUES

No. 22

DREAM INTERPRETATION AS A PROJECTIVE TECHNIQUE*

DOROTHY DAY

Ordinarily, the average person is quite ready to give an explanation of another person's dreams, even though he knows little or nothing about this person. It would seem that either dreams are similar enough in content to be experienced by most persons and understandable to them, or else that, due to the vague or symbolic nature of many dreams, the dream serves as a structure into which the individual attempting the interpretation projects his own emotional responses or actual experiences. . . . The possibility that projection was taking place in the "interpretations" seemed more likely.

To test this hypothesis, 10 dreams were selected out of about 50 dreams which had been related by about 25 persons. The dreams chosen were those which would lend themselves to varied interpretation; that is, they contained little reference to specific people or situations. The instructions and explanation preceding the dreams, as well as the ten dreams finally selected are given below.

Many people believe that dreams represent the pleasant or unpleasant experiences of a person, or that they are about things they would like to have happen; and that sometimes the real

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person or object in a dream is replaced by a substitute or a symbol. Assuming this to be true, what do you think might explain each of the following dreams related by ten persons? Go into as much detail as you wish.

1. The dreamer was talking to a person who began to grow smaller and smaller; finally the person turned into a moth and flew away.
2. The sky was filled with airplanes from which parachutists were jumping one after the other. The dreamer suddenly realized that suspended from one parachute was not a man, but a baby. Ground forces began firing at the parachutists and the dreamer wondered if the baby would reach ground safely.
3. There was a knock at the door. The dreamer opened it and found a man she did not recognize, yet she had a very strong feeling that she knew him.
4. A large dog and a small dog found a hen's egg. The smaller dog tried to help the big one pick it up, but in doing so he accidently knocked the egg from the big dog's mouth and it broke.
5. On returning home at night the dreamer finds that besides his own bed there is a new double bed in the room which is occupied by a stranger and his wife.
6. The dreamer walked down to where he thought the grocery store was located, but he found instead it was the place he worked in; upon returning to where he expected to find his home, he found instead a post office.
7. The family was getting ready to go on a picnic, but the dreamer learned that mother was not going; nor was she around anywhere. Questioning the father and brothers and sisters about the mother, brought no replies from them.
8. A friend of the dreamer's who had been envied by all for her beauty and ability to have a good time was dreamed to be enrolling in another school for a technical course where there was little opportunity for anything but work.
9. The dreamer and his mother were at a train station. The dreamer's suitcase came open and he was attempting to put his clothes back into it. The dreamer discovered that he was naked and put a child on his lap so that people would not notice.

10. One by one, large green claws were closing in on the dreamer. It was impossible to move.

The subjects were adult men and women who had had no formal training in psychology and who had not participated in the collecting of the dreams. The subjects were asked to read the instructions above the dreams and were then given a choice of writing out their own responses or of dictating their answers to the experimenter.

INTERPRETATIONS MADE OF THE DREAMS

In analyzing the responses to the first dream, in which "the dreamer was talking to a person who became smaller and smaller, finally turning into a moth and flying away," it was found that more than half of the explanations fell into the general category of a withdrawal of affection. Examples of this were: "the dreamer was afraid of losing someone very important to her," and "it was a case of one-sided love." Although half of the dreams gave a similar explanation, they differed in their approach or response to the withdrawal situation. The moth's becoming smaller and smaller was explained by one person as "the loved person is going away, leaving the dreamer," by another as "the dreamer wants that person out of his life even though she loves him," and again, "the hopelessness of getting to know a person whom she felt important to her." The explanations of the dream which did not fall into the above category included, "feeling of inferiority, a lack of consequence both in the smallness and lightness of the moth." (Many of the responses of this person mentioned insecurity or inferiority.) A second explanation not falling into the usual category was the response, "the dreamer may have wanted to get rid of some person in his life—and that person vanished easily and with no trouble to the dreamer."

The second dream, concerning the infant descending with the parachutists and being fired upon, was given a wider variety of explanations than the first. In four cases associations were made with actual babies. One response was "a desire to have a child"; a second, "fear of conceiving an illigitimate child"; a third, "worry about his own child's well-being." Other interpretations were: "he has a problem and wonders about the solution, and whether or not it will work out," "The dreamer is thinking of a person he knows who is not equipped to take an adult role emotionally, but who is forced by necessity into doing so."

The third dream, in which a stranger appears at the door whom the dreamer feels she knows, was explained by all but one of the single women as a desire to meet the right man. However, the feeling of already knowing the person was explained by one as, "you always feel this way when you're in love, even though you've known the person only a short time," or again—"the person is so anxious to meet someone, she feels she might even pick on a stranger if she could convince herself she might like him." Two of the men gave a similar explanation, one giving the interpretation—"frustration by vicarious experiences from reading books, seeing movies, etc." The person who brought a feeling of inferiority into the first dream explained this as "Fear that some close friend bears resentment; fears the knock but represses knowledge as to who the accuser is."

The next dream in which a smaller dog attempts to help a larger one but blunders, brought responses such as, "the dreamer is the small dog, and she tries to help but always makes a fool of herself," "a stupid and clumsy person tries to help an efficient and clever person who is the dreamer but ends up by hindering him," "a younger sister spoils things for the older one," "rebuke of the small dog for not having aided the parent dog," and "the dreamer is an overly conscientious person for whom things seldom turn out right."

Explanations to the fifth dream, in which the person finds a stranger and his wife occupying another bed in his room, differed again very markedly. Responses included—"fear of someone's intruding on his privacy," "a feeling of losing touch with his wife," "desire for another person's wife," "the dreamer has lost faith in his wife," and "sexual frustration."

The sixth dream, telling of familiar buildings not being in their expected places, was interpreted almost unanimously as representing confusion in the dreamer's life, although different causations for the confusion were given such as, "feels insecure about her daily work or life," "this person is too busy," "feeling of disorientation in the world, uncertainty as to where he wants to go," and "fear that his job is leading nowhere."

The dream concerning the mother who is not at home as expected was given varied interpretations revolving around the "missing" mother. Some of these were, "worry about her mother whom she loves," "feeling of insecurity," "lack of confidence in the mother," "possible dislike of the mother," and "there has been a recent death—the mother's—in the dreamer's home."

The eighth dream, in which a beautiful girl is enrolling for a difficult course where there will be little time for fun, is explained by almost half of the subjects as representing jealousy. One subject overcame the jealousy situation with the interpretation, "the dreamer realizes that brains as well as beauty are important, and that you should capitalize on what you have." Another response suggested, "the girl is tired of having people admire her beauty; the dreamer wants recognition of her intellectual traits."

The ninth dream which concerned an opened suitcase, and in which the dreamer discovers he is naked, was the occasion for two people to remark, "I've had dreams like this!" One person who said this was unable to give an explanation of the dream, saying she often wondered what her own dream meant and thought it must have something to do with being naked. Other responses included, "fear of being naked," "fear of rebuke by the mother," "must have had something to do with shame in the dreamer's life," "attempts to justify nakedness by pointing out that he is only a child by identification with the child in the dream," and "something to do with inhibition by the dreamer."

The last dream, in which claws are closing in on the dreamer, is interpreted as various forms of confining or threatening situations. These included, "you might be getting married and thinking about the fact that you will be losing your freedom," "fear that he was not doing all that was expected of him on his job," "the bedclothes were too tight," and "a feeling of being caught and unable to get away, a generalized fear."

In considering the dream interpretations of each of the subjects as a whole, it was observed that several of them showed a similar type of emotional response to a majority of the dreams. One individual's replies made frequent reference to worry or consideration of "home" difficulties, brother and sister relations, attitudes toward parents, etc. Another subject's responses showed frequent involvement of inferiority and guilt feelings. A third person's interpretations made four references to fear of his inability to live up to job requirements and to a general feeling of insecurity in his work.

CORRELATION OF INTERPRETATION MATERIAL AND CASE HISTORY MATERIAL

Fairly complete case histories were available for several of the subjects, and to determine if projection had occurred, the content of the interpretations of the dreams was compared with actual facts about the individual's life and his attitudes towards himself and others. The subject who gave four instances of concern over his job was actually very fearful and uncertain about his present job situation, as was the person showing concern over family relationships, although in both cases this concern was not wholly recognized by the individual.

As might be expected, specific responses or interpretations did not always correspond to the objective information about the subject's life. Thus, a person's giving death as an explanation to the mother's disappearance would not necessarily indicate that this person had lost a parent. Such responses had to be interpreted in the light of the other material brought forth, and would more likely represent an attitude or emotional response toward a situation—in this case a response to the loss of a member of the family. On the whole, the overall pattern of emotional response proved a more reliable index than specific content in the interpretations. In the first dream, in which the person becomes smaller and smaller, finally turning into a moth and flying away, the explanations to this situation showed agreement with the individual's general approach to a difficult situation. The person who felt the dreamer was getting rid of the other person (the moth) tended to have a more aggressive attitude toward difficulties in real life, while the subject who found the person to be withdrawing and leaving the other person alone, feels a degree of inability to cope with her present environmental situation. The subject giving many guilt and fear responses shows a similar pattern of insecurity in his personality and behaves in a submissive manner to many situations.

Although projection undoubtedly occurred in these dream interpretations, the limited nature of the replies and the scattered areas of a person's life which were touched upon made it difficult to organize the material into usable form for personality study. In some instances, as noted, where the pattern of emotional responses is fairly consistent throughout, the information is of value in understanding the subject, but in other cases the material is more scattered. It is possible that a more thorough exploration of suitable dreams and a larger number of analyzed responses as to usual and unusual responses, as well as a study of the type of personality patterns involved would make this type of projective technique more useful.

Awareness on the part of the subject that he is projecting his own concepts into the dreams apparently does not greatly hinder the method. The dreams were given to two persons with psychological training who at first stated that it was impossible to attempt interpretation without having the dreamer's associations. When asked to try anyway, these same persons still projected their own emotions and attitudes into the dreams, presumably as this was all that was immediately apparent to them in the dreams.

SUMMARY AND CONCLUSIONS

The purpose of this experiment was to determine whether projective material might be obtained from the interpretations of dreams when no reference was made to the person having had the dreams. It was felt that in attempting such an interpretation, the subject might bring his own emotions, attitudes and experiences to the situation. The subjects, who were adult men and women, were given ten real dreams of different persons, and they were then asked to give their explanations of the wishes or experiences of these persons which might have accounted for their having had such dreams.

The interpretations made by the subjects presented numerous approaches to the same dream. When there was some similarity in the interpretations of a number of persons such as "jealousy of the dreamer," there was still a diversity of ways in which this was handled—fearfully, with rationalization, or in an accepting manner. Considerable agreement was found between the subject's overall pattern of emotional response in interpreting the dreams and in his approach to real situations in his life. A general pattern sometimes appeared in the responses of one person to a majority of the dreams, such as a feeling of insecurity in home life or of guilt, and this also proved to be a projection of his own present difficulties or attitudes toward life.

In conclusion we may say that:

1. Because the vague and sometimes symbolic nature of dreams is a common experience to most people and is accepted easily by them, dreams can serve as stimuli for projective interpretations.

2. When an interpretation of a dream is made without reference to the person having had the dream, the interpreter is projecting his own emotions, attitudes, and experiences into the dream material.

3. The pattern of emotional responses and attitudes, which may be used in analyzing personality structure, is more reliable than the specific references to person or situations found in the dream interpretations.

No. 23

A COMPARATIVE STUDY OF DREAMS AND RESPONSES TO THE THEMATIC APPERCEPTION TEST:

I. A NEED-PRESS ANALYSIS*†

Hiram L. Gordon

It has frequently been observed that various projective tests tend to emphasize different aspects of the personality. One projective test may emphasize content of one kind while another may tend to diminish this content and focus attention on another kind. The practical significance of these differences in content should be considered in the light of the degree to which a particular projective test favors the occurrence of ego defenses. This point is frequently ignored. There is a tendency, for example, to

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accept as equally valid and revealing a subject's attitude toward sex whether it comes from answers to an objective questionnaire, an autobiography, a conventional projective technique, or from dreams, each of which may involve ego defenses which differ in character and intensity. Thus a subject's views on marital relations are probably considerably different as portrayed in his dreams and in his responses to a personality inventory. In the former case, the subject has so little control of his assumed public role or so little concern for preserving it that he will express some attitudes and desires that he may never act out. On the other hand, in the personality inventory the responses may be influenced by the impression that the subject wishes to give of himself. However, the information obtained from both methods may contribute significantly to an understanding of the person.

There have been few investigations of the specific interrelationships between various projective procedures which may vary in the degree to which they arouse ego-defending mechanisms. The most effective way to approach this problem is to compare two projective procedures which lend themselves to the same method of analysis, but which, at the same time, may vary widely in the extent to which they elicit self-defending mechanisms. Dreams and TAT's have been widely used as techniques to obtain information on the basic needs and ego defenses. There is reason to believe that, in general, subjects, despite individual variability, exert less conscious influence on their dream productions than on equivalent productions from the TAT, or any other commonly used projective test. At the same time, both dreams and TAT stories involve narrative reports of subjects which are comparable in mode of expression. For this reason the same method of analysis may be utilized appropriately on productions from either procedure.

The present report will be concerned with a comparison of the manifest content of dreams[1] and TAT stories of the same subject using a method of analysis which has been commonly used in TAT research—namely the need-press mode of analysis. . . .

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[1] Dream narratives, of course, were used instead of the actual dreams of the subjects. When "dreams" are referred to hereafter, it will mean the subjects' reports of their dreams. There may have been a considerable difference between what the subjects remembered or reported they remembered of their dreams and what they actually did dream. However, psychoanalysts consider that any dream as it is related is relevant projective material.

SUBJECTS AND PROCEDURE

The subject group consisted of 29 adult psychiatric patients, of whom 24 were men and 5 were women. Their ages ranged from 21 to 40 years. All but four had been in the armed services during World War II. Their employment records, with very few exceptions, were brief and unsatisfactory. The subjects varied widely in regard to intelligence, education, and community status. Eight of these subjects were single, 19 married, and 2 divorced. The psychiatric diagnoses of these subjects as found in the official case records are given in Table I.

TABLE I

PSYCHIATRIC DIAGNOSES OF SUBJECTS
(N=29)

Psychoneuroses	
Anxiety state	7
Anxiety state, with hysteria	1
Anxiety state, with depression	1
Anxiety state, with neurasthenia	1
Anxiety state, with compulsive tendencies in an immature personality	1
Conversion reaction	2
Dissociative reaction	1
Psychoneuroses, with history of earlier psychotic episode in remission	
Depressive reaction, in paranoid schizophrenia in remission	2
Depressive reaction, with a history of psychotic episode	1
Obsessive-compulsive personality; remission from acute schizophrenic reaction	1
Immaturity reactions	
Passive dependency type	4
Passive aggressive type	2
Chronic, with dissociation phenomena	1
Emotional instability, with chronic alcoholism and psychogenic gastric disorder	1
Emotional instability	1
Emotional instability, with history of psychotic reaction	1
Sexual deviate	1

The TAT (1943 edition) was administered individually to the subjects. The 20 cards were administered in the recommended order, except that card 16 (the blank card) was given last. The test was usually given at a single session with a brief intermission after card 10. Stories were either written down by the examiner or recorded by means of a Soundscriber. When the subject did not give a complete story, the tester asked nonleading-type questions to direct the attention of the subject to the missing part or parts. Unproductive subjects were given reassurance and encouragement.

Dreams were collected in two different ways. When a therapist had already collected recent dreams, a TAT was given to the subject and then the dreams were taken from the therapist's notes. Approximately 45 per cent of the dreams used were obtained in this manner. Dreams of the other subjects were collected by the investigator after he had given the TAT. Subjects were supplied with paper and pencil and asked to record in detail, immediately on arising, any dreams they might have had during the night. Actually most hospital subjects tended to disregard repeatedly the instructions to write down their dreams; they preferred to report them verbally. The investigator asked the subjects about the feeling tone accompanying the dream and also asked questions trying to elicit more memories of what actually happened in the dream. Associations were not asked for, but were taken when offered spontaneously. In this manner a series of from 6 to 19 dreams was collected from each subject.[2]

Although both dreams and TAT stories are personal narratives lending themselves to the same method of analysis, the dream, as Hall and Murray point out, is more highly symbolized and thus some of its subtle content escapes any treatment of the manifest content. The method of analysis used in this study was adapted from the need-press system of TAT scoring devised by Aron, which is a modification of Murray's original TAT scoring system. In this method each sentence or clause of a story is scored in terms of the kind and intensity of needs and environmental press overtly expressed. Need *(n)* variables are those which describe what the central character of the story thinks, feels, desires, or does. Press *(p)* variables are those that describe the forces from the environment that affect the central character. Aron defines and illustrates operationally 71 need and press variables. . . . Scoring of the degree of intensity of a variable varies from 1 for a minimal use up to 5 for a maximal use. A major virtue of this method is that it facilitates a quantitative analysis of the content of dreams and of TAT stories. In the current investigation Aron's scoring for characteristic defenses used by the subject and for outcomes of the stories, which are probably her most nearly unique contributions, were not used. Certain additions were made to her scoring in order to clarify ambiguous cases that frequently recurred in these data.

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[2] Most hospital patients asserted that they seldom dreamed. Frequently patients would admit dreaming before coming into the hospital, then, unless they were started in psychotherapy, they would claim to have stopped dreaming. There are a number of possible explanations of this behavior. For example, patients might fear that the reporting of their dreams would hamper their chance of early discharge, or the lack of varied stimuli in the hospital might tend to prevent the production of dreams that would be easily remembered.

All of the TAT stories of the subjects were scored before any of the dreams were scored. Since scoring was spread over a period of several months there was little probability that memory of the scoring of a subject's TAT stories influenced the later scoring of his dreams. All scoring was done by the investigator. . . . A spot check of some records by rescoring them after about three months indicated that the scoring followed a quite consistent pattern.

RESULTS

The score of each need or press variable is a function of both the frequency and intensity of its occurrence. Each occurrence is weighted on an intensity scale of from 1 to 5. The weighted frequencies are then totaled to obtain a single score for each variable. Since dreams and TAT stories varied in length, and since there were varying numbers of dreams from the different subjects, it was necessary to introduce a correction. Therefore, the total raw score for each variable for each subject was converted into a percentage-content score by application of the following formula:

$$\begin{array}{c}\text{Percentage-content score}\\ \text{of a subject}\\ \text{(for each variable)}\end{array} = \frac{\begin{array}{c}\text{Total score for variable}\\ \text{in dreams (or TAT)}\end{array}}{\begin{array}{c}\text{Total of scores for all}\\ \text{variables in dreams (or TAT)}\end{array}} \times 100$$

Percentage-content scores were computed separately for dreams and TAT stories of each subject.

TABLE II

Comparison of Relative Manifestation of Each Variable in Dreams and TAT Stories, Expressed in Terms of Number of Subjects Having the Higher Percentage Content Score in Either Procedure (*N*-29)

Variable, or Group of Variables	*Method Having Higher Subject Frequencies on Percentage-Content Score*	*Number of Subjects in Dominant Category*	*Chi-square of Differences in Frequencies*	*Level of Significance*
1. Outward aggression	Dreams	21	5.8	.02
2. *n* Aggression	Dreams	16	.3	
3. *p* Aggression	Dreams	25	15.2	.001
4. Passive Aggression	Dreams	17	.9	
5. Verbal Aggression	Dreams	15	.03	
6. Physical Aggression	Dreams	20	4.2	.05
7. Coercive Aggression	TAT	16.5	.6	
8. Inward Aggression	TAT	16.5	.6	
9. Dependence (Aron)	TAT	19	2.8	
10. Dependence (modified)	TAT	19	2.8	
11. Independence (Aron)	TAT	17	.9	
12. Independence (modified)	TAT	18	1.7	
13. Superiority (Aron)	TAT	19	2.8	
14. Superiority (modified)	TAT	19	2.8	
15. Wants help	TAT	15	.03	
16. Helpful	Dreams	15	.03	
17. Equality	Dreams	20	4.2	.05
18. Affiliation	Dreams	21	5.8	.02
19. Sex	TAT	18	1.7	
20. *n* Sex	TAT	19	2.8	
21. *p* Sex	Dreams	18	1.7	
22. Manipulative	Dreams	18	1.7	
23. Construction	Dreams	17	.9	
24. Environmental press	TAT	21	5.8	.02
25. Physical danger	Dreams	19	2.8	
26. Affliction	TAT	23	10.0	.01
27. Death	TAT	21	5.8	.02
28. Total mood	TAT	19	2.8	
29. Dejection and gloom	TAT	28	25.1	.001
30. Tension and fear	Dreams	22	7.8	.01
31. Elation and Happiness	TAT	20.5	5.0	.05
32. Total sentience	Dreams	16	.3	
33. Super ego and ego ideal	Dreams	16	.3	
34. *n* Harmavoidance	Dreams	22	7.8	.01
35. Benefits and deprivation	TAT	18	1.7	
36. Benefits only	TAT	22	7.8	.01
37. Deprivations only	Dreams	17	.9	

Note: Row 1 of this table should be read as follows: 21 of the 29 subjects had the higher percentage content score in Outward Aggression in their dream series than in their TAT's. The number of subjects thus Categorized is far enough above Chance expectation to give a Chi-square of 5.8, which is significant at the 2-percent level. In Column 3 there are three instances where .5 of a person is shown. Whenever a subject has equal percentage Content scores in dreams and TAT stories .5 of a person was assigned to each method for statistical purposes.

One method of comparing the percentage-content scores from dreams and TAT stories is shown in Table II. The purpose of this was to determine the extent to which (for each variable or group of variables) the amount of expression differed significantly in the two methods. Column 1 lists the variables, or groups of variables, that were chosen for study. Aron lists all of her needs and press under 12 groups, which are listed in Table II as items 1, 8, 9, 11, 13, 17, 22, 24, 28, 32, 33, and 35. Items 10, 12, 14, 15, and 16 are composed of groups of variables especially arranged for this study; they were chosen because they seemed to be dynamically meaningful in personality study[3] and also because they occurred in sufficient amounts to be scored so that they would have an acceptable degree of reliability. The remaining items of Column 1 are individual needs or presses that recurred frequently and seemed of importance enough to merit study apart from the group. A quantitative index of relative expression of each variable in dreams or TAT stories was determined by obtaining the number of subjects for whom the percentage-content scores were higher in dreams or TAT stories. Column 2 shows which method had the higher number of subjects for each variable. Column 3 indicates the number of subjects in the dominant category. Chi-squares of the differences of frequencies of the two methods were computed for each variable, as shown in column 4. In column 5 are listed the levels of confidence of the significant chi-squares.

The data in Table II are based on the direction of the difference between dreams and TAT stories and do not consider the magnitude of differences found in individual subjects. Therefore, it is possible that a chi-square of Table II could point to significantly greater content scores in dreams than in TAT stories and yet this apparent difference might not be consistently present. For example, in Table II, 21 subjects had higher percentage-content scores for Outward Aggression in their dreams; only 8 subjects had higher scores for Outward Aggression in their TAT stories than in their dreams. Still it would be possible for these 8 subjects to have used so much more Outward Aggression content in their stories than in their dreams that there might be a higher percentage of Outward Aggression content in all the TAT stories than in all of the dreams of the 29 subjects. In order to insure that the effects of any great individual differences on the total amount of content from a variable would not go unnoticed, mean percentage-content scores for each variable in dreams and in TAT stories were computed, as shown in Table III. It is apparent that in every variable of Table II (excepting item 27—Death) where a significant number of subjects used more percentage of content in one method than in another, the mean percentage-content scores of Table II is consistent with the findings of Table II. Thus, more subjects had a greater use of Outward Aggression in dreams than in TAT stories, and it will be found that the mean percentage-content score is higher for dreams than for TAT stories. Death, Physical Danger, and Verbal Aggression, which were variables included in Table II, were not included in Table III because their content scores, for most subjects, were so low that mean content scores based on them would be obviously unreliable.

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[3] Some of Aron's grouping of variables did not seem logical in that she put need and press scorings of a variable in the same group, or dynamic category. For example, under Dependence (item 9) is placed both the need for deference and the press of deference from others. If one is analyzing on the basis of manifest content, these scorings of the press of deference would fit more logically under Superiority (item 13) than under Dependence. It was to investigate this possibility that the items marked "modified" were included.

The mean scores in Table III are based on both intensity and frequency. Mean frequency of scoring per dream and per TAT story was computed for each variable found to be significant in Table II. Mean scoring of intensity of each of these significant variables was secured for all dreams and for all TAT stories. These results are not reported here in detail, but are summarized below. In every case where one method has a significantly higher percentage-content score for a variable than the other method (Table II), the former also has a greater mean frequency of scoring per unit (story or dream). In every variable studied, except Dejection and Gloom, the mean scoring of intensity was somewhat higher in dreams. An artifact of the Aron scoring system is primarily responsible for this. She provides that when a subject mentions a need or press that is obviously indicated by the TAT picture the basic scoring will be one. All other basic

TABLE III

MEAN PERCENTAGE-CONTENT SCORE FOR EACH VARIABLE IN DREAMS AND TAT PROTOCOLS OF INDIVIDUAL SUBJECTS

Variable, or Group of Variables	*Mean Percentage-Content Scores*	
	In TAT's	*In Dreams*
1. Outward Aggression	8.1*	11.9*
2. *n* Aggression	3.6	4.7
3. *p* Aggression	4.6*	7.2*
4. Passive aggression	1.5	1.7
5. Physical aggression	2.8*	5.3*
6. Coercive aggression	1.6	1.6
7. Inward aggression	2.4	1.9
8. Dependence (Aron)	5.8	4.9
9. Dependence (modified)	9.9	8.6
10. Independence (Aron)	4.3	3.6
11. Independence (modified)	4.0	3.4
12. Superiority (Aron)	9.2	8.8
13. Superiority (modified)	8.3	7.6
14. Wants help	4.8	5.2
15. Helpful	2.3	2.6
16. Equality	13.2*	15.9*
17. Affiliation	7.5*	10.6*
18. Sex	5.6	5.2
19. *n* Sex	3.8	2.7
20. *p* Sex	1.8	2.4
21. Manipulative	14.7	15.6
22. Construction	8.0	8.0
23. Environmental press	11.3*	8.9*
24. Affliction	4.3*	2.5*
25. Total mood	11.3	9.0
26. Dejection and gloom	3.4*	0.6*
27. Tension and fear	3.7*	0.6*
28. Elation and happiness	2.1*	1.0*
29. Total sentience	5.8	6.5
30. Super ego and ego ideal	6.3	7.4
31. *n* Harmavoidance	1.5*	3.6*
32. Benefits and deprivations	7.8	6.9
33. Benefits only	4.2*	2.5*
34. Deprivations only	3.7	4.0

*As presented in Table II, significant differences were found for these items.

scorings will be two. Hence there are some scores of one on the TAT's but none less than two in dreams. This would have little effect on the percentage-content scores, but would tend to make the mean scoring of intensity in dreams slightly higher. Therefore, whenever there is a significant difference in the use of a variable in dreams and TAT stories (Table II), this difference can be explained by the frequency of the scoring. However, when dreams predominate (and in the predominant use of Dejection and Gloom in TAT stories), the scoring of intensity of the variable can be an added explanatory factor. For example, even considering the scoring artifact mentioned above, there is a suggestion of greater mean intensities in dreams in regard to *n* Harmavoidance, Tension and Fear, Physical Aggression, *p* Aggression, Death, and Environmental Press.

The question arises whether some variables correlate to a greater degree in dreams and TAT stories of individual subjects than do other variables. These correlations are presented in Table IV. Of 42 product-moment correlations, 11 were found to be significant at better than the .05 level of confidence. All significant correlations were positive in direction. The few negative correlations found did not approach significance.

For each of the 29 subjects the distribution of the various percentage scores from his dreams was correlated with the corresponding scores from his TAT protocol. Of the 29 intra-individual correlations made between percentage-content scores from individuals' dreams and TAT stories, 10 were found to be significant at better than .01; five more were significant at better than .02; three more were significant at better than .05; the remaining 11 correlations were not significant. Clearly there is a close relationship between the content of most subjects' dreams and TAT stories.

DISCUSSION

As has been shown above, there are systematic and significant differences in the utilization of the various kinds of content in dreams and TAT. The most significant findings follow: The content of the dreams, as compared with that of the TAT, was higher in aggression directed outwardly, press aggression (where the central character is aggressed against), physical aggression, the

TABLE IV

PRODUCT-MOMENT CORRELATIONS OF DREAMS AND TAT WITH RESPECT TO PERCENTAGE-CONTENT SCORES FOR EACH VARIABLE (29 SUBJECTS)

Variable, or Group of Variables	*r*	*Level of Significance*
1. Outward aggression	+.22	
2. *n* Aggression	−.10	
3. *p* Aggression	+.57	.01
4. Passive Aggression	+.15	
5. Physical Aggression	+.41	.05
6. Coercive aggression	+.07	
7. Inward aggression	−.08	
8. Dependence (Aron)	−.09	
9. Dependence (modified)	−.20	
10. Independence (Aron)	−.02	
11. Independence (modified)	+.35	
12. Superiority (Aron)	+.09	
13. Superiority (modified)	+.21	
14. Wants help	+.09	
15. Helpful	+.28	
16. Equality	+.37	.05
17. Sex	+.37	.05
18. Affiliation	+.18	
19. *n* Sex	+.18	
20. *p* Sex	+.27	
21. Manipulative	+.01	
22. Construction	−.13	
23. Environmental press	+.57	.01
24. Affliction	+.37	.05
25. Total mood	+.40	.05
26. Dejection and gloom	+.16	
27. Tension and fear	+.36	
28. Elation and happiness	−.16	
29. Total sentience	+.02	
30. Super ego and ego ideal	−.05	
31. *n* Harmavoidance	+.25	
32. Benefits and deprivations	+.50	.01
33. Total benefits	+.33	
34. Total deprivations	+.68	.01
35. TAT aggression outward *vs.* TAT super ego total	−.11	
36. Dreams aggression outward *vs.* dream Super ego total	−.01	
37. TAT superiority (modified) plus Independence (modified) *vs.* dream Dependence (modified)	+.38	.05
38. TAT equality *vs.* dreams superiority (modified)	+.31	
39. TAT dependence (modified) *vs.* dream Equality	+.20	
40. TAT *n* aggression *vs.* TAT *p* aggression	+.41	.05
41. Dream *n* aggression *vs.* dream *p* aggression	+.18	
42. TAT *n* aggression *vs.* dreams *p* aggression plus inward aggression	+.20	

desire to affiliate closely with people on a nonsexual basis, tension, fear, and the desire to avoid harm and escape threatening situations. On the other hand there was more use in the TAT stories of content expressing dejection, gloom, affliction, happiness, the beneficial aspects of the environment, and the press of environmental forces. This information is derived from Tables II and III. In general it would seem that the dreams were more concerned with interpersonal relationships and the tensions arising therefrom. TAT stories dealt more with nonpersonal and descriptive aspects of the subject's environment and the moods arising from them.

The relationships between the content of dreams and TAT stories are so complex that it is questionable whether there is a simple universal explanation which suffices for all subjects. However, there does seem to be some element of logical consistency that links together the variables emphasized in dreams. Assuming that one feels aggressed against, it is natural that one would tend to meet this situation with tension, fear, attempts to escape, and a desire to affiliate with other people for support. Or, if one starts with a feeling of tension and fear, it is also natural that there should follow a fear that one will be aggressed against, a desire to avoid threat and harm, and a seeking for allies to give support.

There have been two theories advanced to help explain and interpret the TAT which, in the opinion of the investigator, might profitably be expanded and applied to the relationship between a subject's dreams and his TAT stories. Murray, and Sanford suggest that tendencies restricted in expression by cultural sanctions are apt to be emphasized in TAT stories. This hypothesis probably could be broadened to state that as intellectual control decreases there is an increasing use of material that is culturally condemned. Symonds, while also pointing out that the subject tries to make the content of his TAT stories socially acceptable, maintains that the subject tries to make his story fit the concept of himself which he seeks to impress on the examiner. Although Symonds' view appears plausible, one can further assume that in dreams there is less concern with maintaining a certain role, or assumed self, and more concern with failures or adjustment in the self that actually exists.

Let us see how these two explanatory hypotheses—that with increased intellectual control there is a greater concern *(1)* to produce socially and culturally acceptable material and *(2)* to convey a chosen concept of self to others—help to explain the differences of content found in dreams and TAT stories.

A great amount of aggression is generally disapproved in our culture. In giving TAT stories the subjects probably do not consider it wise to express aggression strongly. In dreams this censoring force is weaker and the aggression comes out more frequently. Also, in our culture physical aggression is strongly condemned and punished; verbal, coercive, and passive expressions of aggression are quite common and more frequently permitted. The latter forms are just as frequent in TAT stories as in dreams, but physical aggression is expressed more strongly in dreams. A possible contributing factor here is that, as most dreams are expressed in visual images, physical aggression will be easier to express in dreams than verbal or passive aggression would be.

At first thought it may seem that *n* Aggression should predominate in dreams rather than *p* Aggression. On further reflection a different line of reasoning arises for consideration. The subjects used in this study were inadequate, dissatisfied, generally unsuccessful people. They may wish to conceal this fact from themselves and others. It appears plausible to hypothesize that in TAT stories the degree of intellectual control of the subjects results in their meeting felt aggression with aggression of their own; this would be necessary in order for them to maintain their self-respect and the role they are trying to play. Under the lessened intellectual control of dreams, their sense of inadequacy to meet felt threat is so much greater than their desire to maintain the pose of an adequate role that they meet aggression with an anxious attempt to escape harm. Such behavior, in a more moderate degree, is probably not limited to a patient population, since most people in our culture, according to the investigator's clinical experience, prefer to be thought of as high-tempered or impulsive rather than inadequate, spineless, and placid. Thus they may tend to conceal in TAT stories and any other productions which are more controlled than dreams the threat they feel from others.

There is significantly more content devoted to *n* Harmavoidance and to the moods of Tension and Fear in the subjects' dream than in their TAT protocols (Table II). *N* Harmavoidance reflects a quite uncontrolled type of behavior in which the central character of the projection fears injury or death and acts to avoid physical injury. It seems that in dreams, where there is less control, the subjects are more concerned with the threat of physical danger. This threat, instead of being met with counter-aggression as might be expected in order to maintain their self-respect, is usually followed in the dreams by an anxious and fearful attempt to escape physical harm. This suggests the further hypothesis that in dreams one's ability to exercise initiative to overcome threat is more limited than in TAT stories. The subject is overwhelmed in his dreams by a situation that he would attempt to cope with in his TAT stories. For example, a subject in his dream might flee in hopeless terror from an angry woman; yet the subject, when confronted objectively by the same situation on a TAT stimulus card, might feel quite competent to handle the situation—he would probably conceal any expression of terror. It appears that social approval is less a concern in dreams than in TAT stories, and the hidden, primitive, and basic fear of a threat from others which he may not be able to meet is more freely expressed in dreams than in TAT stories.

The content of the subject's TAT protocols gives expression to danger from outside, as do their dreams, but, rather than using aggression from people, there is significantly more Environmental Press, particularly *p* Affliction and *p* Death,[4] in TAT stories (Tables II and III). Environmental Press includes such things as death, affliction, accidents, punishment, and forced labor. These are impersonal forces whereas aggression, according to Aron's system, is related to people. With the greater control in telling TAT stories, the subjects seem to tend overtly to attribute their misfortunes, or the threats that they feel, to impersonal sources. For example, it would probably be less anxiety-producing for a subject to tell a TAT story of becoming ill than of his brother trying to murder him. It is less anxiety-producing because *(1)* people usually accept Environmental Press as somewhat inevitable and thus it calls for less in the way of reprisal or energetic countermeasures than does aggression, and *(2)* because there is some tendency for a subject to accept his TAT stories as true and personal although he may not be aware of this. Therefore, in telling of his brother's trying to murder him the subject may feel some guilt in accusing his brother of murderous hostility, he may wonder if the fancied hostility is real, and he may be indecisive as to what he should fantasy doing about the situation—should he strike first before the brother or should he try to atone for a seemingly unjustified accusation by increased kindness. This line of reasoning may explain, in part, why a subject using greater intellectual control in his TAT stories seems to accentuate the impersonal, logical aspects of the threat he feels from outside himself.

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[4] The greater frequency of death in TAT stories is probably due to the instructions to give an end to the stories. A frequent story ending on some TAT cards was to have the leading character killed. On the other hand, dreams usually ended before death resulted.

In line with the hypothesis that TAT stories have a greater amount of content dealing with development of the environment than do dreams is the finding that there was significantly more Benefits content in the TAT stories (Table II). Benefits refers to such things as a leading character of the story being described as strong or handsome or the environment being beautiful or bountiful. The opposite scoring of this, Deprivations, has about the same content score in dreams and TAT stories. It is quite possible that in dreams environmental factors are as important as in TAT stories, but that in striving to recall briefly seen dreams the action and mood have made a greater impression than the environmental setting on the memory of the dreamer and are more easily put in words in order to be communicated to others. Also, most users of the TAT have noticed that many subjects who often resort to describing the details of the stimulus pictures do so because they are defensive and anxious and because they feel that telling a story would be more revealing and threatening.

Allied to the greater amount of Tension and Fear mood states in dreams is a decidedly greater use of Dejection and Gloom states in the TAT stories of the subjects (Tables II and III).

Subjects gave expression to intensities of fear and anxiety in "nightmare" quality dreams that were never manifested in the TAT stories. In the TAT protocols subjects found it more acceptable to talk of the central character's being unhappy and his environment gloomy than to dwell on his being fearful; one reason for this may be that a preoccupation with content expressing fear suggests to the story-teller that he is cowardly and lacks masculinity. A contributing factor to this preponderance of content expressing Dejection and Gloom content in TAT stories is the experimental demonstration that the stimulus value of TAT cards is prevailingly dysphoric. Perhaps another reason that dreams, as compared with TAT stories, tend to minimize the content expressing Dejection and Gloom is that they give stronger emphasis to fear and the stream of action taking place; whereas TAT stories devote more content to developing the underlying mood and characterizing the environment. Whatever may be the reasons, the use of content expressing Dejection and Gloom is far greater in the TAT stories than in the dreams; both the frequency and intensity of scoring are higher in the TAT stories.

There is more content expressing a desire for Affiliation in dreams than in the TAT stories. Affiliation refers to a desire for companionship and friendship, but not on a sexual basis. This greater emphasis on Affiliation in dreams than in TAT stories fits in with the pattern previously found of more emphasis in dreams on felt aggression from people, tension and fear resulting, attempts to avoid harm, a greater willingness to express inadequacy to meet threat, and a lessening attention given to developing details of the environment. It is as if the dreamer were seeking allies to meet his difficulties. There are, of course, other explanations for this greater attention in dreams to a desire for close companionship. Another possible explanatory hypothesis is that the dreams of the subjects give expression to a positive striving or wish for close companionship which is concealed to a greater degree in TAT stories. For example, when a subject pays considerable attention to defending his concept of himself, as in telling TAT stories, he is reluctant to express his feelings that he is lonely and lacks ability to attract friends.

Table IV shows that of the 42 correlations computed between subjects' content scores on a variable in their dreams and in their TAT stories, 11 are significant at the .05 level of significance and four of these are significant at the .01 level. Only 10 of the 42 correlations are negative and none of these approached significance. The pattern of the correlations, which are predominantly positive, gives reason to conclude there is a definite and reliable relationship, although not a particularly close one, between the type of content found in the subjects' dreams and in their TAT stories. However, with subjects manifesting a different degree of adjustment than the group used, there might be significant negative correlations between the manifest content of subjects' dreams and TAT stories.

The significant positive correlations of Table IV indicate that the amount of content related to certain variables in an individual subject's dreams tends to be about the same as in his TAT stories. These variables refer to content expressing the press of aggression from other people, physical aggressive acts, interest in associating with other people, interest in sexual relations, the press of non-human environmental forces, the concern with being afflicted, the state of the central character's mood, and description of the beneficial and depriving aspects of the central character's environment. It will be noticed that most of these positive correlations tend to appear in regard to concepts and affective evaluations dealing with the forces from other people or from the environment affecting the central character of the fantasy, which is commonly taken to represent the subject. In this regard it might be pointed out that the correlation of content expressing interest in relating to other people in the dreams and TAT stories of subjects seems to be mostly due to the correlation of the amount of content describing the sexual interest of other people in the central characters of the fantasies (Table IV).

Although the 10 negative correlations of separate variables in Table IV did not reach a satisfactory level of significance, nevertheless they do suggest a meaningful trend. All of these correlations tend to deal with the more positive actions or needs of the central characters of the projections, such as the need to aggress, self-blame or inward aggression, interest in dependence, interest in planning, creating or doing something, and the feeling of elation or happiness. The pattern of correlations suggests a tendency for subjects to give a different emphasis in their dreams and in their TAT stories regarding their more positive actions and their feeling of well being. One can say with more certainty, as indicated above, that the content of subjects' dreams and TAT stories tends to give a similar emphasis concerning the affective evaluation of their environment and of the intentions of other people concerning the subjects. As was stated earlier, it is generally assumed that a subject has a greater concern with defending and enhancing his concept of himself in his TAT stories than in his dreams. Thus it is suggested that a subject, in his projections, does not consider that the concept of self he wishes to give will be greatly threatened by the view he presents of his environment and of other people. The same subject seems to feel it more necessary to manipulate the positive acts of the central characters of his projections to give a picture he approves of, for these acts may be felt to be more revealing of the subject's actual feelings. Those feelings, in turn, may not be entirely consistent with the picture of himself he wishes to present for public approval.

The individual subjects' content scores for *n* aggression in their TAT stories correlates +.41 with percentage-content scores for *p* Aggression found in the same TAT stories. This is significant at the .05 level. A similar correlation based on dreams of the individual subjects is only +.18, which is far from significant (Table IV). In dreams the mean content score expressing *p* Aggression is of greater magnitude than the mean content score for *n* Aggression, 7.2 *vs.* 4.7 (Table III). On the other hand, in the TAT protocols of the subjects the content scores for *p* Aggression and *n* Aggression are not only correlated, but have mean content scores of about the same magnitude (Table III). Therefore, it seems that a subject will use almost as much *n* Aggression as *p* Aggression in his TAT protocol. In his dreams he will tend to use considerably more *p* Aggression content than *n* Aggression content, but the relationship between the two variables will be much less predictable than in his TAT stories. One explanation of this finding is that a subject in his TAT stories, in order to try to maintain his self concept of being adequate and courageous, will meet the aggression he feels from others with counter-aggression. On the other hand, in dreams it seems the subject frequently does not meet aggression from others with aggression, but reacts with other content, particularly with tension and fear.

One other significant correlation was found. Content scores in the TAT protocols expressing Superiority[5] and Independence,[6] which were rather closely related in the scoring, added together, correlate with the content score expressing Dependence[7] in dreams at the .05 level of significance. Computation of this correlation was suggested because the content scores for Dependence in subjects' dreams correlate —.20 with content scores from their TAT protocols. This suggested the possibility that there might be a tendency for a basically dependent person to express more clearly this dependency in his dreams and then attempt to conceal it, or compensate for it, by stressing content implying superiority and independence in his TAT stories. The significant correlation mentioned above and scattergrams made of this relationship affirm that there is a tendency for subjects who appear to be quite dependent, from the manifest content of their dreams, to have a greater than average amount of content in their TAT stories which expresses an alleged desire for independence and superiority. This suggests the tentative hypothesis for further study that in certain valued areas of personality one view of the self is expressed in dreams and then in TAT stories, or any other production in which the subject is more concerned to defend or enhance his chosen concept of himself, an attempt will be made to conceal this view, or to compensate for it by emphasizing diametrically opposed content. If this hypothesis were correct, dreams of a subject could be used in conjunction with his TAT productions as a technique for gaining information on the nature of threats towards and defenses protecting his self-concept.

SUMMARY AND CONCLUSIONS

The dreams and TAT protocols of 29 adult, nonpsychotic, psychiatric subjects were systematically compared as to the types of content expressed. The 327 dreams and 580 TAT stories of the subjects were scored by the Aron need-press system of scoring TAT productions. A statistical analysis was made on the basis of the percentage of a subject's total scored content dealing with these variables in his dreams and in his TAT stories.

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[5] An example of content expressing Superiority: the central character of the projection wants to lead a group of people.

[6] An example of content expressing Independence: the central character of the projection disregards the orders of his parents.

[7] An example of content expressing Dependence: the central character of the projection returns home to receive advice from his mother.

Subject's dreams, as compared with their TAT stories, usually expressed with greater frequency and intensity socially unacceptable material, aggression, tension, and fear, as well as less depression and self-blame. They also showed a greater desire for close companionship, and tended to portray the central character of the projection as passive and inadequate. The central character of dreams was more typically the recipient rather than the originator of the action. Subjects, in telling TAT stories, tended to use a higher percentage of the total content in describing the environmental aspects of their projections than when telling dreams. There were significant positive correlations between percentage content scores in the dreams and TAT protocols of the subjects in regard to the following variables: Press Aggression, Physical Aggression, Equality of Status, Affiliation, Environmental Press, Affliction, Total Mood, Benefits, and Benefits and Deprivations. There was a positive correlation between the amount of content which subjects devoted in TAT stories to aggression against other people and objects and the amount of content devoted to being the victim of aggression; this relationship does not obtain in dreams. A positive correlation was found between the amount of content in subjects' TAT stories expressing the desire for superiority and independence and the amount of content in their dreams indicating a desire to be dependent. There seemed to be a tendency for subjects' percentage-content scores to be positively correlated for variables describing their view of the extent and nature of the press of the environment, of other people upon them, and the affective evaluation made of this press. A tendency was noted for negative correlations, not individually significant, to be found in variables dealing with the more positive actions and needs of the central characters. In general, there is a definite relationship, although not a highly correlating one, between the nature and amount of content found in subjects' dreams and in their TAT stories.

The data support the hypothesis that some, but not all, differences in content between a subject's dreams and TAT stories can be explained by assuming a greater concern with defending and enhancing an idealized concept of the self in the TAT stories. It appears that in his TAT stories the subject attempts, consciously or unconsciously, to keep the central character of his projections from expressing any material that is clearly inconsistent with his concept of self, or that violates cultural sanctions. In the dream, where there is presumably less concern with defending this idealized role and less intellectual control, freer expression is given to the customarily suppressed material. In order to maintain his idealized self-concept, the subject in his TAT stories tends to meet aggression with aggression of his own. In his dreams the subject seems to manifest less initiative and confidence and is overwhelmed by situations that he may have coped with in his TAT stories. It would appear that in dreams the subject is less concerned with maintaining his idealized self-concept of adequacy and maturity and more concerned with escaping threat to his safety. It is suggested that dreams and TAT stories of a subject could be used in conjunction to gain information concerning his self-concept, threats toward it, and defenses protecting it.

No. 24

DREAMS AND THEMATIC APPERCEPTION TEST STORIES*

SEYMOUR B. SARASON

The Thematic Apperception Test has been receiving increasingly wider use as a tool in the exploration of an individual's more or less unconscious attitudes and complexes. . . .

The purpose of the present study was to compare the thematic stories with the dreams of the same individual. Since dreams are an excellent source of phantasy life not subject to the errors

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usually inherent in test-obtained data, they can serve as criteria against which one can compare the more controlled phantasy life revealed in the Thematic Apperception Test. If one interprets the dreams of a subject in the same manner as one would his thematic stories, it is possible to compare similar types of data. Although the interpretation of dreams is a procedure which is by no means handled alike by all clinicians, one may in part avoid the controversial issue involved by analyzing each dream as if it were a thematic story; that is, in terms of the central character or characters with whom identification has taken place, and in light of the relationships expressed among the characters in the phantasy.

Additional hazards are encountered in the use of dream material. It can be maintained that not all the dreams are remembered by the individual, and that those dreams most repugnant to the ego will be suppressed and repressed. Another factor to be taken into consideration is that, since mental defectives served as subjects in this study, one could not obtain the subject's associations to his dreams so as to be able to distinguish more finely between manifest and latent content. However, it is because mental defectives served as subjects that some of the objections to the use of dreams are in part obviated. As Pearson has pointed out in his analysis of the psychopathology of mental defect, the feebleminded person suffers from a permanent defect in the ego function. "This results in a disability of the function of the super ego. The id is intact . . . The feebleminded person, because of his ego defect, is confronted with a serious intrapsychic dilemma. He cannot find adequate outlets for the gratification of the demands of his id nor can he satisfactorily repress or inhibit them". It follows from such an analysis that the dreams of the feebleminded will suffer less from the distortion forced upon unconscious material by the super-ego, and that the relationship between the latent and manifest content will be less involved than with normals. In addition, since the feebleminded are markedly more naive as a group, not only about the motivations of others but about their own as well, they are more likely to recount all the dreams they can remember and not to block or suppress as often as the normals.

The subjects in this study were 25 girls institutionalized at the Southbury Training School for mental defectives. The IQ's ranged from 32 to 90 with an average of 69, and the average chronological age was 23 with a range from 17 to 50 years. In 16 cases the dreams were recounted immediately after the subject had finished relating the thematic stories. Since it could be maintained that the mental set engendered by the telling of the stories would influence the subsequent recall of dreams, another group of 9 cases was studied with whom dream data were obtained several days after the thematic session. There was no observable difference between the two groups insofar as the kinds and number of dreams were concerned. The relationship found between dreams and thematic stories held to an equal degree for both groups and they will henceforth be treated as one. The original set of Morgan and Murray thematic pictures was used.

It was not thought feasible to reduce the type of data used in this study to quantitative terms. It was felt more advisable to present the raw data so that the interpretations of the material by the writer could be more readily checked by others.

CASE 1

Sabina is a 22-year-old girl with an IQ of 55. At the time of her initial admission to an institution the case history stated that this girl was a "poor risk to leave in the community because of the combination of her defectiveness, abnormal interest in boys, and a poor home environment." The girl's home was considered so poor that she was placed with a foster family. When the home conditions had improved, Sabina was returned but "she was very unruly, stubborn, and the entire family resented her presence." The psychological summary reads: "a high grade girl who is emotionally unstable and who is easily flustered and frustrated when confronted with a new task. These characteristics result in impulsiveness which lowers her accuracy. She is highly suggestible. This combination of facts makes Sabina a poor bet for an essentially successful placement."

The themas which were found with most frequency in the thematic stories were ambivalence toward the mother, insecurity, fear of separation from loved ones, and guilt connected with a fear of retribution. The following sample story is in part illustrative of the rebellion toward the mother:

"It's as if she's trying to get rid of the baby—she doesn't look like a good mother—her hair is not neat—she should have neater hair for a mother—if she was neat she'd bring the child up right—if authorities saw her treating the child like that they would take it away from her and put it in a school like this and bring it up right.

In several other stories a more positive attitude toward the mother is indicated, but in general the hostility seems stronger. Two stories are given below which indicate the girl's insecurity—seen most clearly in anxiety about lack of food:

"It's as if he wandered away from home—he has no place to go —he looks at the house over the bridge as if he thinks he'll go in there and stay—he looks kind of cold standing there—by going in there he'll find food and stay alive.

"This might be a sailor whose ship went down—he was the only one saved from the ship—he has no way of getting food—he is hungry—it looks as if he'll fall down any minute cause he hasn't had food for such a long time."

It should be noted that insecurity and anxiety were also manifested in other stories in which some fear as to mental status was indicated. Stories in which either the themas of fear of separation or guilt are revealed follow:

"Maybe it's her mother or grandmother—she don't look well —she is pale—the girl brings her water—she tells her to sit down —the girl looks like a very young lady—the grandmother explains what to do in the house—the girl looks interested and listens to her—she goes and does what grandmother says—she comes back every once in a while to see if the grandmother is all right cause if she died she'd lose one of her best friends—then she'd have to go somewhere where they wouldn't treat her as well—they would have stricter rules.

"He looks strong and husky—somebody down on the ground is looking at him—he is trying to get him down from the pole—it's as if he's afraid to come down and take his punishment because it would be a severe one.

"She has her back turned to the boy—it is his mother—she is not pleased with him—she doesn't want to listen to what he says—he done something wrong—she looks worried as if he's going to be put away in prison—she has no one to support her after he is put away."

It should be pointed out that the fear of separation from loved ones comes out very strongly in her stories. In the final analysis of this girl's thematic test it was felt that there was a causal relationship between the ambivalence toward the parents and the fear of separation from them. The following are the dreams of this girl:

1. "I was in institution X—I dreamt of my father—I was praying for my father—my mother came and pulled my hair—I screamed—she said I'm pulling your hair because father don't need prayers—I do.

2. "My brother was in the army—he came home on a furlough—my aunt wrote in for me—I went home for the first time —I was glad to be home.

3. "I went out with Mrs. Jones—we sang in Father Smith's church—I came back to the school.

4. "I saw snakes on the floor—I got so frightened that I woke up to see if the snakes were looking at me.

5. "We went to institution A—Mr. Roselle (superintendent of Southbury) said he was going to leave me there cause my people wanted me there—I yelled in my sleep: please leave me in Southbury.

6. "I had a fight with Mary S.—it took some of the staff to keep me from hurting her—I don't like her so well.

7. "My mother was walking on the street—the boys and girls said there was my mother—I was afraid to look at her cause I knew she was dead—she hollered, "Sabina, Sabina, come to me, I'm your mother—don't be scared because the devil will never hurt you."

The major theme which can be abstracted from these dreams is concerned with fear, anxiety, and ambivalence toward the mother. On the one hand, the mother maltreats the child and is a source of fear and guilt, and, on the other hand, the mother is asking in what seems a pleading fashion for the child to be reunited with her. The separation theme comes out strongly in dream 5 when she begs not to be left in an institution; it is of interest to note that the blame for the contemplated separation is laid to "my people." This projection of blame seems to corroborate the conclusion that this girl's ambivalence is in some way connected with her separation from home. In general, the main themas found in her stories are found with equal strength in her dreams.

CASE 2

Helen is a 19-year-old girl who is the youngest child in a family of six. Her parents are foreign born who have taken on few American customs. The mother has been inadequate in supervising and disciplining her children. Helen was brought to the attention of the police after having had numerous experiences with boys who picked her up. The type of sexual activity in which she participated was described as "perversions." Helen's stay in the institution has been marked by many temper tantrums in which her excellent knowledge of abusive terms comes to the fore. She is stubborn and recalcitrant with those who supervise her and it has been necessary to change her job very frequently. On the Wechsler-Bellevue Full Scale this girl obtained a quotient of 72.

The main theme found in this girl's stories was rebellion toward authority in general and the mother in particular. Connected with this theme were those of rejection, aggression, and guilt—the guilt coming out in stories in which people "have learned their lesson." Sample stories in which these themas are brought out follow:

"The mother is carrying the baby from something like an accident—she's carrying the baby so it won't get into danger—it was an accident or something—the mother didn't seem to care at first or the accident wouldn't have happened—now it's too late—she cares for him now—it wouldn't have happened if she cared.

"The girl is trying to explain something to the mother—the mother is sick and the girl is trying to talk to the mother nicely but it doesn't seem to work out—the expression shows the mother doesn't care much about it—the girl is trying to be polite and reason—but the mother doesn't seem to care.

"The boy is supposed to take violin lessons–he doesn't care about it–he's sort of sleeping–he doesn't care to take violin lessens by the expression on his face– he didn't care to take lessons in the first place–he didn't listen to his elders–if he did he would take lessons.

"The boy doesn't want to listen to his mother–he did wrong–his mother told him to be good–he didn't care–she told him not to bother her any more–she doesn't seem to care for him–if he listened to his mother nothing would have happened–he'll learn his lesson what his mother told him but it is too late."

From these stories, it seems clear that feelings of rejection are a basic factor in her personality organization and that as a result one finds her reacting by placing blame both inward onto herself and outward onto the family. Moralization appeared frequently in the stories as an expression of her own guilt feelings. Her dreams follow:

1. "I dream of going out some day–my brother is in the service and I dream will I ever see him again?

2. "I dreamt how I had a fight with a girl–we had an argument–we made up– and we were good friends after that.

3. "Someone asked me to change my faith or be killed–I said I would rather die–I died in the dream.

4. "I dreamt I was home–I went to a party–it ended late–my mother asked me to come home early–I told my friends that–they said: "the fun is just beginning"–I said I had to–one of the boys took me home–I was home in time.

5. "I dreamt I ran away–I went home–I banged on the door –my father said he was coming to open the door–but he never came–I waited–but I got tired–I went back to face my punishment.

6. "I went home on Christmas–everything seemed different–I told them I was put away for training–they said I should have another chance.

7. "I dreamt I walked out on a job–I felt awfully sorry–people told me how it would have been better if I didn't walk out.

8. "I dreamt I would find a boy who liked me–I would have a nice home and children of my own."

The mixed feelings toward the home are again demonstrated.

In several of the dreams one finds not only the strong desire to be home but also the deep feeling of rejection from the home this girl harbors. In dream 6 the parents forgivingly grant the girl "another chance" but in dream 5 the girl is now allowed admittance into her own home. In dream 4 the conflict between the rules of the mother and the desires of the girl is in evidence. In addition to dream 4 where there is an undercurrent of rebellion, dreams 3 and 7 are also illustrative of this girl's aggressive recalcitrance. The feelings of guilt, which seem connected with her negativistic attitude toward authority, are seen in dream 5 where she ran away but ultimately "went back to face my punishment," and in dream 7 in which she "felt awfully sorry" for walking out on a job—a usual occurrence in her institutional experience. It is clear that the projective material in the thematic stories and the dreams are largely concerned with similar personality factors.

CASE 3

Rose is a 38-year-old woman who has been in institutions for mental defectives since 1915. She comes from a most disreputable family, in which the girl's father "traded the patient's mother for an alarm clock to his brother." Rose is a chronic run-a-way during which times she has had sexual intercourse with any and all men—a propensity which necessitated sterilization. Her IQ on the Stanford-Binet (1916) was 63. She has long had the reputation for possessing a fertile imagination of which intensive song and poem writing are only two examples. She has felt neglected because her family has shown so little interest in her, and her disappointment about this went so far as to deny at times that she knew anything about her people—maintaining that she had been found wrapped in a blanket beside a river.

Four main themas emerged from this girl's stories. The first had to do with ambivalent feelings toward the parents—especially the mother. In several stories the mother is described as being neglectful of the child and too authoritative, and in others the mother is seen as a benevolent, affectionate woman who becomes distraught at any misfortune which befalls her children. The following are two stories which illustrate the ambivalence:

"The mother shouldn't hold the baby that way—you are supposed to hold them more gently—she's a funny-acting woman—they ought to take the baby away because she don't know how to take care of it—(patient then demonstrated how gently one must handle a baby)—maybe she was married and had a child—her husband deserted her—she went a little wacky—I guess—she doesn't wear no shoes—suppose she thinks she's a Spanish dancer who doesn't need shoes."

"This little girl is sad—her people have gone away—she's looking out of the window—wondering whether they'll be back—if she was bigger she could go—she is staying with an aunt who is mean to her—she keeps looking and looking—she cries—her aunt calls her—you better come, Jane, it is supper—I don't want supper—I want my mother—her aunt says it will only be a few weeks—no, said the girl—I'll go with my mother—she packs her clothes and runs away—she is with her mother and is very happy."

The second theme which occurred frequently was concerned with a desire for money and recognition. In these stories the central character is usually one who from a humble and lowly position in life is able to rise to one of power and greatness. The following story is illustrative:

"This was a long time ago—his name is Bobby—his father said to him, I want you to be a musician like I was—the father bought him a violin—he told Bobby to practice and he'll be famous like Tchaikowsky—he got despondent one day—he put the violin down and said: Dad, there will never be any hope—I'll never be a violin player—Father said that practice makes perfect—he had to practice when he was younger—Bobby thought maybe you're right—he picks it up and starts to play—after all they bring him to New York in a concert—in front of Tchaikowsky—he said he was swell—he signed a contract—he became famous—Bobby now is the most famous violin player in the world."

The two other themas which were considered of major importance were concerned with love and marriage, and with religious faith. Several stories are concerned with "a married couple who were very happy" or with a man and woman who are "devoted to one another and fell in love." There is a tendency in these stories for the woman to be left alone because the husband is sick or else "sailing away after kissing her goodbye." The theme of religious devotion, one which emerged frequently and told with a note of fervor in her voice, is shown in the following story:

"This is a hump back boy—he got it from infantile paralysis —his mother asks the doctor if his back will be all right—I don't think so, said the doctor—the only one who will make him better is to take him to Canada to the Saint's shrine—she went upstairs and prayed—before that he was laying on the couch discouraged —I'll never be better he thought—after he went to Canada he got better—now he got a job—making pretty good money—I had infantile paralysis."

There is no record of this girl's ever having infantile paralysis. It is also of interest to note how the desire for money crops out in this story as it does in many of the others. The dreams which this girl related are given below:

1. "I was walking—I saw this house—it was a strange house—somebody was with me—they said go in—I said no—later I went in—I saw the snake wrapped around the pole—I got scared—I yelled and woke up.

2. "I could see my father and mother—they said to me: you better be good—Pa, I said, I'm always good—they gave me a great big crucifix—it shined pretty—I said to my mother: I always wanted one and never could get it.

3. "I was walking on top of the water—then I went underneath it—as if there was an opening—I saw a mermaid—I said: what is this place called—this is wonderland—if you come with me I'll show you beautiful things—I walked with her—we came to a door—a golden door—I touched it—then beautiful things like diamonds and crystals came through it.

4. "I dreamt I had St. Theresa's book—I put the book under my pillow—I came out of the house—I saw my mother—she said where is St. Theresa's book—I said I didn't know—she said don't lie to me—she got awful mad at me—I tried to run away from her—she had hold of me—I couldn't go—I started crying— we came to a manhole—she said: you find me St. Theresa's book or I'll push you in—she pushed me in.

5. "I dreamt I'm getting murdered—these men they shoot—I

get it in the back—I can feel their hands around my neck—they are looking at me—I get scared—I can hear a lot of shooting.

6. "Miss C took me to her home—her mother was there and my mother—she took me upstairs and showed me her room—it was all in blue—a pretty blue—I said what a wonderful home—she said yes—I don't have to work for money anymore because I'm a millionnaire—I came down stairs—I smelled something cooking—yelled upstairs: what are you cooking—chicken, she said— it don't smell like chicken—I went to the table—picked up the casserole—there were all kinds of ice cream—I ate and ate and ate.

7. "I dreamt I was dying—I could see myself going—you can see the angels and the Lord—I saw the Lord right in front of me—it was so like real—I tried to wake up but couldn't—my heart beat faster—I heard voices saying—poor girl, she's dying.

8. "I went out of here (Southbury), I was singing my songs in front of a microphone—I said to Al Jolson: do you think I'll go over big—sure, he said—I said: I've been practicing and practicing—I want to be a good singer and dancer—then I was on the stage—I had a beautiful gown on—I was tap dancing—in Hollywood—what a beautiful gown I had on."

When one remembers that the main themes which were elicited from this girl's stories were ambivalence to the parents (especially the mother), desire for recognition and greatness, love and affection, and religiousness, the significance of Rose's dreams becomes apparent. Again one finds (dreams 2 and 4) parents as being, on the one hand, protecting and kindly, and, on the other, harsh and condemning. The hostility of the mother towards the girl bears out the analysis of the thematic stories as to mixed feelings toward this parent. The guilt and anxiety which are found in the dreams, however, are not as strongly in evidence in her stories. The desire for greatness, money, and recognition, which appeared so strongly in her stories, comes out with equal force in dreams 3, 6, and 8. The religiousness which was so obvious in her story likewise appears in dreams 2, 4, and 7. The theme of love and affection, the least clear of the major themas, is also only vaguely present in the dreams.

The similarity between dreams and thematic stories illustrated in the three cases presented is also found when one analyzes the data obtained from the remaining subjects. Not in every case were all the major themas in the thematic found in the dreams, but in no case were data from any one subject at complete variance. The validity of thematic interpretations is felt to be demonstrated. The results of this study also show how easily obtained, projective data such as dreams can be used to corroborate a thematic analysis; another means is thus placed at one's disposal of reducing the errors introduced by the interpreter's biases.

No. 25

CONSISTENCY OF AFFECT AND SYMBOLIC EXPRESSION: A COMPARISON BETWEEN DREAMS AND RORSCHACH RESPONSES*

Hedda Bolgar

The accurate prediction of future behavior or the correct inference of originally unknown but subsequently verified past behavior is the primary goal of all diagnostic and prognostic clinical activity. It is also the validating technique par excellence for our assumptions and hypotheses in the scientific investigation of personality. No wonder, then, that in recent years much of psychological research has centered around the testing of clinicians' success in predicting future behavior of individuals in a variety of situations, on the basis of the clinician's assumed knowledge of the subject's personality structure. The results so far have been by and large discouraging; only in rare instances were clinicians able to predict the future behavior of their subjects with better than chance success. . . . One of the most crucial questions raised by these studies is the one concerning the consistency of personality and its manifestations in consistent and therefore predictable behavior.

In this context there are at least two general aspects to the problem of consistency; one, that of the consistency of the so-called "basic personality structure" as it is inferred from clinical sources such as life histories, projective test data or psychiatric inter-

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views, and the other, that of the consistency of overt behavior as an expression of the personality structure.

In the study which I am about to present briefly, two relatively small segments of this general issue were explored. The first dealt with the assumption that the distribution of basic affects as part of the personality structure is consistent in an individual and that this consistency can be demonstrated by categorizing and comparing the affective content of his responses to comparable events. The other segment deals with the problem of consistency of overt behavior, in this case the symbolic expression of affect. The question here is whether individuals are consistent in the choice of symbols by which they express what we assume to be consistent affective content and whether they are characteristic interindividual or intergroup differences in variability and range of the symbolic expression. By affective content we mean such general feelings as hostility, anxiety or dependency; by the symbolic expression of affect we mean the words or images which express such feelings.

The dual assumption, then, underlying this study is that there is demonstrable consistency in the distribution of affective content in human personality, and that the symbolic form and range of its expression varies. We are further assuming that the variance is, in our culture at least, related to the rigidity or flexibility of the individual and that therefore rigid individuals will show a more consistent choice and a narrower range of symbols for the expression of the same basic affect than will more flexible individuals. In line with this, we made one more assumption, namely, that the range and variability of symbolic expression are directly related to emotional health and that individuals at the extreme pathological end of the continuum will show a very narrow range, while healthy, well-integrated individuals will express their affect through a great variety of symbols.

To test these assumptions, the following procedures were applied. From each of a total of 30 adult subjects one Rorschach protocol and ten dreams were collected within as short a period of time as possible. In no case did the interval between the administration of the Rorschach and the recording of the tenth dream exceed six weeks. This was done to avoid as well as possible the effects of uncontrolled major external events. The subjects were 15 psychotic women patients in a Midwestern state hospital and 15 nonpsychotic subjects, 13 of whom were women. These two groups of subjects were further subdivided into a "severely disturbed" psychotic group, a "less severely disturbed" psychotic group, a "subjectively disturbed" nonpsychotic group, and finally a "subjectively comfortable" nonpsychotic group. None of these groups were homogeneous with regard to either pathological or characterological diagnoses; they have in common only the degree of emotional or mental health.

Dreams and Rorschach protocols were selected as the two media for assessment of intraindividual consistency of affect. This was done primarily because among available clinical or projective devices they seem to be the most comparable. Both elicit affective responses which are expressed in symbolic form; in both the choice of the symbol is a function of ego control, and although the Rorschach represents an external stimulus while the symbolization in the dream is spontaneous, the Rorschach inkblots are sufficiently free from realistic demands to allow for responses which have been aptly described as "laboratory dreams." (Hermann Rorschach himself, of course, would disagree with this point of view. In *Psychodiagnostics,* page 123, he says: "The test cannot be considered as a means of delving into the unconscious. At best, it is far inferior to the other more profound psychological methods such as dream interpretation and association experiments. This is not difficult to understand. The test does not induce a 'free flow from the subconscious' but requires adaptation to external stimuli, participation of the 'fonction du réel.' ")

All Rorschach protocols and all dreams were scored for the affective content of the responses. This was done by the method outlined in DeVos' paper on "Affective Symbolism in Rorschach Responses" which consists essentially of categorizing the symbolic expressions of affect through the content into such categories as Hostility, Anxiety, Dependency, and Positive Feelings. DeVos uses three additional categories, namely, Bodily Preoccupation, Neutral, and Miscellaneous. Of these we used only the neutral category, since most responses which might have been scored under either one of the other two seemed to fit better into Anxiety.

Parenthetically, the question might be raised whether "Bodily Preoccupation" or "Miscellaneous" can be considered genuine categories of distinct affect or whether they are not just catchalls for uninterpretable content. However, we are not primarily concerned here with either the validity or the internal logic of the scoring stystem, nor do we have to agree with DeVos' statement that "the system of thought behind the scoring is that applied to dream analysis in psychoanalytic practice." For our purposes the major advantage in the scoring system is that of adequately demonstrated reliability and the fact that "the indices of affective inference developed in this study permit a controlled comparison of groups of records in the area of affect."

The scores were applied to Rorschach responses as well as to the dreams. In order to make dreams comparable to Rorschach records, each dream was broken down into separate units. Each person, object or action was considered a unit and was given a separate affective connotation. In this way we had two comparable sets of scores for each individual.

If our assumption was correct and individuals actually are consistent in the distribution of their affects, then both the Rorschach and the dreams should have the same ratios of affective content categories for the same individual. We applied chi-square to the affect scores of each individual set of Rorschach responses and dream units to test for significant differences in the frequencies with which responses were scored as Hostility, Anxiety, Dependency, Positive Feelings and Neutral Feelings. In addition to testing the significance of individual differences, we computed a composite chi-square to compare the collective results for significant differences between the affective content as it appeared in the Rorschach and the affective content as it appeared in the dream. The results obtained suggest that the differences are so small as to be statistically nonsignificant. Therefore, we may conclude that there is intraindividual consistency in the distribution of affect, at least in the two projective media which were explored.

In order to test our second assumption, namely, that there is variability in the choice and range of symbols by which affect is expressed, and that the degree of variability is directly related to the mental health of the individual, the following method was applied. Three judges were presented with the Rorschach records and recorded dreams from which all identifying information had been removed. They were asked to attempt to match each Rorschach protocol with the set of dreams they believed to have come from the same subject. They were instructed to do this on the basis of the similarity of symbolic expression in the two sets of data. If our assumptions were correct, there would be more similarity between dream symbolism and Rorschach symbolism in the psychotics' records than in those of the nonpsychotics, and

TABLE I

Correct and Incorrect Matchings in the Psychotic and Nonpsychotic Groups

Psychotic Group				*Nonpsychotic Group*			
Subjects	*Judges*			*Subjects*	*Judges*		
	O.E.	*H.P.*	*N.P.*		*N.P.*	*H.P.*	*P.M.*
F. A.	X*	X	X	R. J.	X	X	X
M. J.	X	X	X	D. N.	X	X	X
B. B.	X	X	X	L. J.	X	X	X
R. G.	X	X	X	Y. U.	X	X	X
O. M.	X	X	X	P. M.	X	—	—
A. L.	X	X	X	F. C.	—	X	—
M. C.	X	X	X	M. S.	X	—	—
A. D.	X	X	X	M. C.	—	—	—
R. R.	X	X	—	G. L.	X	X	X
B. F.	X	X	—	M. J.	X	—	—
L. M.	—	X	—	P. J.	—	X	—
N. N.	X	X	X	E. F.	—	—	—
M. N.	—	—	—	H. E.	—	—	—
F. W.	—	—	—	M. F.	—	—	—
E. S.	—	—	—	M. L.	—	X	—

* X = correct matching.

therefore the judges should match consistently more successfully in the psychotic than in the nonpsychotic group.

There were 45 possible correct matchings in the psychotic group, that is, 15 for each of the three judges; of these, one judge matched 12 sets correctly, one 11, and one 9. In the nonpsychotic group there were also 45 possible correct matchings; each of two judges matched 8 sets correctly and the third judge matched 5 sets correctly. In both groups the judges were successful significantly beyond chance. At the same time the difference between the number of correct matchings for the psychotic group on one hand and the nonpsychotic group on the other is also significant at the .01% level. (Table 1.) To follow through on this result we compared the success of the judges in matching the records of the severely disturbed psychotic group with their success in matching the records of the subjectively comfortable nonpsychotic group; i.e., we compared the two extreme groups in the total population of subjects. (Table 2.)

As Table II indicates, all judges were able to match correctly for all severely psychotic subjects, while their successes with the "subjectively comfortable" group were considerably lower, al-

TABLE II

CORRECT AND INCORRECT MATCHINGS IN THE SEVERELY DISTURBED PSYCHOTIC GROUP AS COMPARED WITH CORRECT AND INCORRECT MATCHINGS IN THE SUBJECTIVELY COMFORTABLE GROUP

Severely Disturbed Psychotic Group				*Subjectively Comfortable Group*			
Subjects	*Judges*			*Subjects*	*Judges*		
	O. E.	*H. P.*	*N. P.*		*H. P.*	*N. P.*	*P. M.*
F. A.	X*	X	X	M. L.	–	X	–
M. J.	X	X	X	G. L.	X	X	X
R. G.	X	X	X	M. J.	X	–	–
O. M.	X	X	X	P. J.	–	X	–
A. L.	X	X	X	E. F.	–	–	–
B. B.	X	X	X	H. E.	–	–	–
M. C.	X	X	X	M. F.	–	–	–

* X = correct matching.

though still significantly beyond chance. We interpret these results to suggest that the difficulty in matching is due to the greater variability and wider range in the choice of symbolic expression among well-integrated individuals. If that is so, then the results clearly bear out our original assumption that there is demonstrable consistency both in the intraindividual distribution of affect and in the symbolic expression of the affect, and that the consistency of symbolic expression increases with the emotional illness and decreases with emotional health.

We have assumed here, of course, that consistency is demonstrated by the fact that Rorschach records and dreams of the same person are sufficiently similar in symbolic content to make correct matchings possible. This raises the question whether the judges actually matched the records on the basis of symbolic content alone, or whether they were also guided by individually characteristic sentence-structure, adjective-noun ratios, or the recurrence of a particular phrase. However, the records of the psychotic subjects were generally so brief and their responses were so direct and simple that there was little room for any elaborate analysis of characteristic language. On the other hand, in the nonpsychotic group where such clues might have facilitated the judges' decisions, they were apparently not sufficiently clear-cut to counterbalance the variety of symbolic expression.

The following Rorschach and dream protocols serve as an illustration. They came from a psychotic patient and were correctly matched by all judges.

RORSCHACH

1. Bones of the breast.
2. 5″ The body, two people, holding candles. That's fire. They're burning up. They look like some friends at home.
3. 12″ The body. They're burning somebody up. Maybe it's some other people I know. Orange juice, Jesus Christ.
4. The rectum, there's the feet. I never saw anything beat that. The body skeleton, breastbones and leg bones.
5. 17″ The rectum. I don't know what else. Somebody's legs.
6. 12″ Spinal column. Hips. This part, too, your back.
7. 12″ That's the bone. A couple of dogs flying in the air.

8. 12″ Polar bears running up and down the sidewalks. One's whole system.
9. 3″ Clouds. Corruption.
10. 3″ Ruination of something.

DREAMS

1. I dreamed of going to Cherokee.
2. I dreamed that I was going downtown.
3. I dreamed of our kingdom, our country and America.
4. I dreamed my head was made out of gold.
5. It seems like the world has come to an end and I am fighting all alone.
6. I dreamed that I was to be crucified.
7. I often see the Christ child, Virgin Mary. They are talking to me telling me what to do.
8. The Virgin Mary was in the dream. It seemed like she and all the girls were having fun.
9. It seemed like somebody was going to shoot me. It seemed as if something were going to happen and quick.
10. It seemed as if I were all alone in the world and had to fight to keep the world from collapsing. I couldn't keep on fighting forever.

It was said in the beginning that this experiment deals with a small segment of the problem of what and who is consistent, and therefore predictable. While it is impossible to generalize from this limited investigation to the much larger problem of consistency and from a relatively simple matching technique to the complex problem of prediction, the results here seem to stress one major point. It has been demonstrated that while there is consistency both in the area of personality structure and its overt expression, the variability and range in healthy, well-integrated individuals make accurate prediction difficult. On the other hand, the stereotypy and paucity of symbolic expression in the severely disturbed person facilitate correct prediction. In conclusion, then, predictability of behavior appears to be directly related to mental health through the criterion of variability or stereotypy of symbolic behavior.

Chapter VII

PHYSIOLOGICAL CORRELATES OF DREAMS

No. 26

THE RELATION OF EYE MOVEMENTS DURING SLEEP TO DREAM ACTIVITY: AN OBJECTIVE METHOD FOR THE STUDY OF DREAMING*

WILLIAM DEMENT AND NATHANIEL KLEITMAN

The study of dream activity and its relation to physiological variables during sleep necessitates a reliable method of determining with precision when dreaming occurs. This knowledge, in the final analysis, always depends upon the subjective report of the dreamer, but becomes relatively objective if such reports can be significantly related to some physiological phenomena which in turn can be measured by physical techniques.

Such a relationship was reported by Aserinsky and Kleitman who observed periods of rapid, conjugate eye movements during sleep and found a high incidence of dream recall in *S*s awakened during these periods and a low incidence when awakened at other times. The occurrence of these characteristic eye movements and their relation to dreaming were confirmed in both normal *S*s and schizophrenics, and they were shown to appear at regular intervals in relation to a cyclic change in the depth of sleep during the night as measured by the EEG.

This paper represents the results of a rigorous testing of the relation between eye movements and dreaming. Three approaches were used: *(a)* Dream recall during rapid eye movement or

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quiescent periods was elicited without direct contact between *E* and *S*, thus eliminating the possibility of unintentional cuing by *E*. *(b)* The subjective estimate of the duration of dreams was compared with the length of eye movement periods before awakening, reasoning that there should be a positive correlation if dreaming and eye movements were concurrent. *(c)* The pattern of the eye movements was related to the dream content to test whether they represented a specific expression of the visual experience of dreaming or merely a random motor discharge of a more active central nervous system.

METHOD

The *S*s for the experiments were seven adult males and two adult females. Five were studied intensively while the data gathered from the other four were minimal with the main intent of confirming the results on the first five.

In a typical experiment, *S* reported to the laboratory a little before his usual bedtime. He was instructed to eat normally but to abstain from alcoholic or caffeine-containing beverages on the day of the experiment. Two or more electrodes were attached near the eyes for registering changes in the corneoretinal potential fields as the eyes moved. Two or three electrodes were affixed to the scalp for recording brain waves as a criterion of depth of sleep. The *S* then went to bed in a quiet, dark room. All electrode lead wires were further attached to the top of the head and from there to the lead box at the head of the bed in a single cord to minimize the possibility of entanglement and allow *S* a free range of movement. The potentials were amplified by a Model III Grass Electroencephalograph in an adjoining room. The electroencephalograph was run continuously throughout the sleep period at a paper speed of 3 or 6 mm. per sec. which allowed easy recognition of eye-movement potentials. A faster speed (3 cm./sec.) was used for detailed examination of the brain waves although the slower speed permitted at least an approximate estimation of the gross pattern. The criteria of eye-movement potentials and their differentiation from brain wave artifacts have been discussed at length elsewhere.

At various times during the night *S*s were awakened to test their dream recall. The return to sleep after such an awakening invariably took less than 5 min. Table 1 is a summary of the experiments showing the number of nights each S slept and the number of awakenings. In all, 21% of the awakenings fell in the first 2 hr. of sleep, 29% in the second two, 28% in the third two, and 22% in the fourth two.

TABLE I

SUMMARY OF EXPERIMENTS

Ss	*Nights Slept*	*Awakenings*	*Average Nightly Awakenings*	*Average Sleeping Time*
DN	6	50	8.3	7:50
IR	12	65	5.4	4:20
KC	17	74	4.4	6:00
WD	11	77	7.0	6:30
PM	9	55	6.1	6:20
KK	2	10	5.0	6:00
SM	1	6	6.0	6:40
DM	1	4	4.0	7:00
MG	2	10	5.0	6:10
Totals	61	351	5.7	6:00

RESULTS

The Occurrence of Rapid Eye Movements.[1]—Discrete periods during which their eyes exhibited rapid movements were observed in all nine *Ss* every night they slept. These periods were characterized by a low-voltage, relatively fast pattern in the EEG. The interspersed periods in which rapid eye movements were absent showed EEG patterns indicative of deeper sleep, either a predominance of high-voltage, slow activity, or frequent, well-defined sleep spindles with a low-voltage background. No REM's were ever observed during the initial onset of sleep although the EEG always passed through a stage similar to that accompanying the rapid eye movement periods occurring later in the night. These findings concerning associated EEG patterns were identical with previous observations on uninterrupted sleep.

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[1] In most of the remaining text the following abbreviations will be used: REM's (rapid eye movements) and NREM's (no rapid eye movements).

An accurate appraisal of the mean duration of the REM periods was impossible since most were terminated artificially by an awakening. However, those that were not so terminated varied between 3 and 50 min. in duration with a mean of about 20 min., and they tended to be longer the later in the night they occurred. The eyes were not constantly in motion during such periods; rather, the activity occurred in bursts of one or two, up to fifty or a hundred movements. A single movement was generally accomplished in .1 –.2 sec. and was followed by a fixational pause of varying duration. The amount, pattern, and size of the movements varied irregularly from period to period.

The REM periods occurred at fairly regular intervals throughout the night. The frequency of occurrence seemed to be relatively constant and characteristic for the individual. DM and WD averaged one eye-movement period every 70 min. and every 75 min. respectively. KC averaged one eye-movement period every 104 min. The other *S*s fell between these two extremes. The average for the whole group was one REM period every 92 min.

Despite the considerable disturbance of being awakened a number of times, the frequency and regularity with which REM periods occurred was almost exactly comparable to that seen previously in a study of uninterrupted sleep. If the awakening occurred during a NREM period, the return to sleep was never associated with REM's, nor was the time of onset of the next REM period markedly changed from that which would have been expected in the absence of an awakening. An awakening during an REM period generally terminated the REM's until the next period, and the sequence of EEG changes, excluding the brief period of wakefulness, was the same as that following an REM period that ended spontaneously. Exceptions occurred when *S* was awakened during an REM period in the final hours of sleep when the period was likely to be quite long if uninterrupted. On these occasions, the REM's sometimes started up again when *S* fell asleep. It seemed as though a period of heightened

CNS activity had not run its normal course and, although *S* was able to fall asleep, he continued to dream.

Eye Movement Periods and Dream Recall.— For all awakenings to elicit dreamrecall, the arousing stimulus was the ringing of an ordinary doorbell placed near the bed and sufficiently loud to ensure immediate awakening in all levels of sleep. The *S*s then spoke into a recording device near the bed. They were instructed to first state whether or not they had been dreaming and then, if they could, to relate the content of the dream. When *S* had finished speaking *E*, who could hear their voices, occasionally entered the room to further question them on some particular point of the dream. There was no communication between *S* and *E* in any instance, it must be emphasized, until *S* had definitely committed himself. The *S*s were considered to have been dreaming only if they could relate a coherent, fairly detailed description of dream content. Assertions that they had dreamed without recall of content, or vague, fragmentary impressions of content, were considered negative.

The awakenings were done either during REM periods or at varying increments of time after the cessation of eye movements during the interspersed periods of NREM's. The *S*s, of course, were never informed when awakened whether or not their eyes had been moving.

Table II shows the results of the attempts to recall dreams after the various awakenings. The REM or NREM awakenings for PM and KC were chosen according to a table of random numbers to eliminate any possibility of an unintentional pattern. For DN, a pattern was followed: first three REM awakenings, then three NREM awakenings, and so on. WD was told he would be awakened *only* when the recording indicated that he was dreaming, but REM and NREM awakenings were then interspersed randomly. The type of awakenings for IR was chosen according to the whim of *E*.

The *S*s uniformly showed a high incidence of dream recall following REM awakenings and a very low incidence of recall following awakenings during periods of NREM's regardless of how the awakenings were chosen. In particular, DN was not more accurate than the others although there was a pattern he

TABLE II

INSTANCES OF DREAM RECALL AFTER AWAKENINGS DURING PERIODS OF RAPID EYE MOVEMENTS OR PERIODS OF NO RAPID EYE MOVEMENTS

S	*Rapid Eye Movements*		*No Rapid Eye Movements*	
	Dream Recall	*No Recall*	*Dream Recall*	*No Recall*
DN	17	9	3	21
IR	26	8	2	29
KC	36	4	3	31
WD	37	5	1	34
PM	24	6	2	23
KK	4	1	0	5
SM	2	2	0	2
DM	2	1	0	1
MG	4	3	0	3
Totals	152	39	11	149

might have learned, and WD was not less accurate although he was deliberately misled to expect to have been dreaming every time he was awakened. Over a narrow range, some *S*s appeared better able to recall dreams than others.

Table III compares the results of the first half of the series of REM awakenings with the last half. Practice was certainly not a significant factor as only one *S* showed any degree of improvement of recall on later nights as compared with the early ones.

The incidence of dream recall dropped precipitously almost immediately upon cessation of REM's. In 17 NREM awakenings that were done within 8 min. after the end of a REM period, 5 dreams were recalled. Although small, this was a much higher incidence of dream recall than occurred when the NREM awakenings followed the end of REM periods by *more* than 8 min. In the latter category only 6 dreams were recalled in 132 awakenings.

TABLE III

COMPARISON OF FIRST HALF OF SERIES OF RAPID EYE MOVEMENT AWAKENINGS WITH SECOND HALF

S	*First Half*		*Second Half*	
	Dream Recall	*No Recall*	*Dream Recall*	*No Recall*
DN	12	1	5	8
IR	12	5	14	3
KC	18	2	18	2
WD	19	2	18	3
PM	12	3	12	3
Total	73	13	67	19

In general, *S*s were best able to make an emphatic statement that they had not been dreaming when the NREM awakenings were done during an intermediate stage of sleep as indicated by a brain-wave pattern of spindling with a low-voltage background. When aroused during a deep stage of sleep characterized by high-voltage, slow waves in the EEG, *S*s often awoke somewhat bewildered. In this state they frequently felt that they must have been dreaming although they could not remember the dream or, on the other hand, that they had not been asleep at all. They sometimes had a great variety of feelings to describe—such as pleasantness, anxiety, detachment, etc., but these could not be related to any specific dream content.

Most of the instances of inability to recall dreaming after awakenings during REM periods occurred in the early part of the night. Of 39 negative reports in the entire study, 19 occurred after awakenings during REM periods falling in the first 2 hr. of sleep, 11 after REM awakenings during the second 2 hr., 5 in the third 2 hr., and 4 in the last 2 hr. There was no such variation relating to awakenings during the interspersed periods of ocular quiescence, the incidence of dream recall being uniformly low, regardless of whether the early or late part of the night was being considered.

Length of Rapid Eye Movement Periods and Subjective Dream-duration Estimates.—If the length of the REM periods were proportional to the subjectively estimated duration of the dreams, it would further help to establish the relatedness of the two and would give some information about the rate at which dreaming progresses.

At first, *S*s were awakened at various increments of time after the REM's had begun and were requested to estimate to the nearest minute the amount of time they had been dreaming. This proved to be too difficult, although the estimates were always of the same order of magnitude as the lengths of the REM periods, and were occasionally exactly right.

TABLE IV

RESULTS OF DREAM-DURATION ESTIMATES AFTER 5 OR 15 MINUTES OF RAPID EYE MOVEMENTS

S	*5 Minutes*		*15 Minutes*	
	Right	*Wrong*	*Right*	*Wrong*
DN	8	2	5	5
IR	11	1	7	3
KC	7	0	12	1
WD	13	1	15	1
PM	6	2	8	3
Total	45	6	47	13

A series was then done in which *S*s were awakened either 5 or 15 min. after the onset of REM's and were required on the basis of their recall of the dream to decide which was the correct duration. The 5- or 15-min. periods were chosen on the basis of a random series. Table 4 shows the results of these awakenings. All *S*s were able to choose the correct dream duration with high accuracy except DN. This *S*, however, made most of his incorrect choices by estimating 15 min. to be 5 min. This is consistent with the interpretation that the dream was longer, but he was only able to recall the latter fraction and thus thought it was shorter than it actually was.

In addition to depending on the amount of actual dreaming, the lengths of the dream narratives were undoubtedly influenced by many other factors as, for example, the loquacity or taciturnity of *S*. However, the lengths of the dream narratives still showed a significant relationship to the duration of REM periods before awakening. Table 5 shows the correlations between minutes of REM's and lengths of dream narratives for each *S*. The number of words in the narrative was the measurement of length. Of the 152 dreams recalled, 26 were not included because poor recording did not allow complete transcription. Dream narratives recalled after 30 or as much as 50 min. of REM's were not a great deal longer than those after 15 min. although *S*s had the impression that they had been dreaming for an unusually long time. This was perhaps due to inability to remember all the details of very long dreams.

Specific Eye-movement Patterns and Visual Imagery of the Dream.—The quality and quantity of the REM's themselves showed endless variation. There was much or little movement, big or small movements, and so on. As has been stated, the movements occurred in bursts of activity separated by periods of relative inactivity. However, the brain-wave stage during the whole period remained the same whether there was much or little movement at any given moment of the period.

It was hypothesized that the movements represented the visual imagery of the dream, that is, that they corresponded to where and at what the dreamer was looking. An attempt to account for every movement by having *S* state chronologically in what directions he had gazed in the dream proved futile. The *S*s could not recall the dream with such a high order of detail and precision.

In a slightly different approach, *S*s were awakened as soon as one of four predominant patterns of movement had persisted for at least 1 min. and were asked to describe in detail the dream content just before awakening. The four patterns were: *(a)* mainly vertical eye movements, *(b)* mainly horizontal movements, *(c)* both vertical and horizontal movements, and *(d)* very little or no movement. The prevalence of the horizontal or vertical components was determined by placing leads both vertically and horizontally around the eyes.

TABLE V

CORRELATION BETWEEN DURATION OF REM PERIODS IN MINUTES AND NUMBER OF WORDS IN DREAM NARRATIVES

Subjects	*Number of Dreams*	*r*	*P*
DN	15	.60	<.02
IR	25	.68	<.001
KC	31	.40	<.05
WD	35	.71	<.001
PM	20	.53	<.02

A total of 35 awakenings was accumulated from the nine *S*s. Periods of either pure vertical or horizontal movements were extremely rare. Three such periods of vertical movements were seen. After each of these the dream content involved a predominance of action in the vertical plane. One *S* dreamed of standing at the bottom of a tall cliff operating some sort of hoist and looking up at climbers at various levels and down at the hoist machinery. Another *S* dreamed of climbing up a series of ladders looking up and down as he climbed. In the third instance the dreamer was throwing basketballs at a net, first shooting and looking up at the net, and then looking down to pick another ball off the floor. Only one instance of pure horizontal movement was seen. In the associated dream *S* was watching two people throwing tomatoes at each other. On 10 occasions *S*s were awakened after 1 min. of little or no eye movement. In these, the dreams all had the common property that the dreamer was watching something at a distance or just staring fixedly at some object. In two of these awakenings in different *S*s the patterns were the same, as follows: about a minute of ocular inactivity followed by several large movements to the left just a second or two before the awakening. Both instances, interestingly enough, were virtually identical as regards dream content. In one case *S* was driving a car and staring at the road ahead. He approached an intersection and was startled by the sudden appearance of a car speeding at him from the left as the bell rang. In the other, the dreamer was also driving a car and staring at the road ahead.

Just before the awakening he saw a man standing on the left side of the road and hailed him as he drove past.

In the 21 awakenings after a mixture of movements *S*s were always looking at things close to them, objects or people. Typical reports were of talking to a group of people, looking for something, fighting with someone, and so forth. There was no recall of distant or vertical activity.

In order to confirm the meaningfulness of these relationships, 20 naive *S*s as well as 5 of the experimental *S*s were asked to observe distant and close-up activity while awake. Horizontal and vertical electrodes were attached. The eye-movement potentials in all cases were comparable in both amplitude and pattern to those occurring during dreaming. Furthermore, there was virtually no movement, as indicated by the eye potentials, when viewing distant activity, and much movement while viewing close-up activity. Vertical eye-movement potentials were always at a minimum except for the upward movements accompanying blinking, and in a few cases when *E* tossed a ball in the air for them to watch.

DISCUSSION

The results of these experiments indicate that dreaming accompanied by REM's and a low-voltage electroencephalogram occurred periodically in discrete episodes during the course of a night's sleep. It cannot be stated with complete certainty that some sort of dream activity did not occur at other times. However, the lack of recall and also the fact that the brain waves were at the lightest level of sleep only during REM periods and at deeper levels at all other times, makes this unlikely. The few instances of dream recall during NREM periods are best accounted for by assuming that the memory of the preceding dream persisted for an unusually long time. This is borne out by the fact that most of these instances occurred very close, within 8 min., after the end of REM periods.

Other workers have attempted to relate dreaming to physiological phenomena during sleep. Wada felt that dreaming and gastric contractions occurred simultaneously. However, this conclusion was based on only seven awakenings in two *S*s. One was unable to recall dream content although he felt he had been dreaming and the other remembered dream content in 3 of 4 awakenings. Scantlebury, Frick, and Patterson also studied gastric activity and dreaming. They felt, on the basis of three instances of dream recall out of seven awakenings, that the two were probably related, but judiciously stated that "the exact time during which a dream occurs is elusive of record." The occurrence of dreaming during a series of foot twitches occurring immediately after the onset of sleep was postulated by McGlade. However, he based this conclusion mainly on dreams recalled on the morning after the experiments which is highly unreliable, and only 3 out of the 25 *S*s studied exhibited foot twitches.

Incidental observations have been made on the occurrence of dreaming by investigators studying brain waves during sleep. All stages of brain waves were related to dreaming in these five papers, but no mention was made of whether or not actual dream content was recalled, and the number of reports by sleepers was generally very small.

In other studies of dreaming, excellently reviewed by Ramsey, attempts were made to localize dream activity by simply awakening *S*s at various times during the night. In general it was found that dreams might be recalled at any time during the night, but that most were recalled in the later hours of sleep. This would correspond to the statistical incidence of REM's as previously reported, and is also consistent with the finding in this study that, even when the awakenings occurred during REM periods, recall was still more difficult earlier in the night.

It was stated herein that all *S*s showed periods of REM's *every* night they slept. This was also the case in another briefly reported series of experiments involving 16 *S*s who were observed a total of 43 nights. It is felt on the basis of these and other studies which are unreported that periods of REM's and dreaming and the regularity with which they occur are an intrinsic part of normal sleep. In view of this, the failure to observe REM's in occasional *S*s reported in earlier work deserves some consideration. One explanation is that the recording was done by sampling rather than continuously. If the REM periods were shorter than usual, they may have occurred in the intervals between the samples, thus escaping observation. Another explanation is that a lower amplification of the REM potentials was employed which, although usually adequate, did not clearly record very small movements. A third possibility is that the dreams of these *S*s happened to be the sort, such as watching distant activity, in which eye movement was at a minimum. Since the association of the characteristic low-voltage, non-spindling EEG was not realized at the time and thus could not aid in identifying this sort of period, they very likely would have been overlooked.

There was nothing in the experiments reported in this paper to indicate that the dreams occurred instantaneously, or with great rapidity, as some have supposed. Rather, they seemed to progress at a rate comparable to a real experience of the same sort. An increment in the length of REM periods was almost invariably associated with a proportional increase in the length of the dream. This could not have occurred if dreaming were instantaneous, since any length of REM periods would then easily accomodate a virtually infinite amount of dream activity.

It seems reasonable to conclude that an objective measurement of dreaming may be accomplished by recording REM's during sleep. This stands in marked contrast to the forgetting, distortion, and other factors that are involved in the reliance on the subjective recall of dreams. It thus becomes possible to objectively study the effect on dreaming of environmental changes, psychological stress, drug administration, and a variety of other factors and influences.

SUMMARY

Regularly occurring periods of REM's were observed during every night of experimental sleep in nine adult *S*s. A high incidence of dream recall was obtained from *S*s when awakened during REM period and a very low incidence when they were awakened at other times. A series of awakenings was done either 5 or 15 min. after the REM's (dreaming) had begun and *S*s judged the correct dream duration with high accuracy. The pattern of the REM's was related to the visual imagery of the dream, and the eye movements recorded in analogous situations while awake corresponded closely in amplitude and pattern to those observed during dreaming.

No. 27

CYCLIC VARIATIONS IN EEG DURING SLEEP AND THEIR RELATION TO EYE MOVEMENTS, BODY MOTILITY, AND DREAMING*

WILLIAM DEMENT AND NATHANIEL KLEITMAN

INTRODUCTION

The EEG patterns accompanying dreaming have never been adequately characterized. In the course of the early descriptive studies of sleep patterns, incidental observations were made by several different groups of investigators and their combined results seemed to indicate that dreaming could occur in all stages of sleep. Davis *et al.* got reports of dreaming from subjects who were awakened shortly after the onset of sleep when the EEG had not progressed beyond the "B" stage, a low voltage, irregular pattern, and also after awakening from a "C" stage, spindling with a low voltage background. Blake, Gerard, and Kleitman concluded that "dreaming is present most of the time" mainly on the basis of one subject who reported dreams nearly every time she was awakened during the night. They felt that dreams were less likely to occur in the presence of high voltage, delta activity. Knott, Henry, and Hadley, on the other hand, obtained several reports of dreaming when subjects awakened spontaneously during periods of high voltage delta activity, and also during spindle activity. Henry described dreams reported after awakening from low voltage, spindle, and spindle plus delta stages. In a study specifically concerning the relation between EEG patterns and dreaming, Teplitz concluded that dreams could occur in association with any sleep potential pattern, but found the highest incidence of dream recall after awakenings during the "B" and "C" stages.

The above results, frequently cited in the literature, suggest a lack of relation between EEG stages during sleep and functional levels of central nervous activity. However, dreaming, with its complex visual imagery and at least a certain degree of organiza-

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tion and purposefulness, is closely akin to waking mental activity, and the supposition that it can occur at any level of sleep as indicated by brain waves is difficult to accept. To be sure, with the exception of Teplitz, the dream reports in the studies cited above were very small in number.

A new method for the detection of dreaming was recently described by Aserinsky and Kleitman who reported the occurrence of periods of rapid conjugate eye movements during sleep and found a high incidence of recall of dream content in subjects awakened during these periods and a low incidence after awakenings at other times. The occurrence of these eye movements and their relation to dreaming was confirmed in both normal subjects and schizophrenics (Dement), and a recently completed study appears to have conclusively established this relationship (Dement and Kleitman 1957).

In the investigation to be described, the EEG during *undisturbed* all night sleep was carefully examined using the periods of rapid eye movement as an objective criterion of dream activity. In this way is was hoped to establish conclusively that the rapid eye movements (dreaming) were associated with a characteristic EEG stage and to determine the frequency of occurrence and quantity of rapid eye movement and related EEG variations throughout an entire night of sleep. Body movement was also observed because of its possible relation to dreaming and its close association with EEG changes during sleep.

Some of the data have already been described in a brief preliminary report (Dement and Kleitman 1955).

SUBJECTS AND METHOD

The subjects for the experiments were 26 men and 7 women. Their ages ranged from 16 to 61 with the majority between 20 and 30. All gave negative medical histories and none reported having insomnia or other sleep difficulties.

All night recordings of eye movements, brain waves and body motility were made on each subject for one or more nights of sleep. In a typical experiment, a subject reported to the laboratory a little before his accustomed bedtime. He had been previously requested to abstain from coffee, alcohol, excessive food intake, and unusually strenuous exercise during the day. Silver disc electrodes were affixed to the scalp with collodion and to the ear lobes and around the eyes with elastoplast. Great care was taken in attaching the electrodes so that they would remain in place without drying throughout the entire night. The lead wires were gathered together and further fastened to the top of the head with collodion. The subject then went to bed in a quiet dark room. The leads were taped together and ran as a single cord to the lead box at the head of the bed. This arrangement allowed a free range of movement without entanglement and minimized any annoyance to the subject. The experimenter then retired to an adjacent room where the recording equipment was located and did not again enter the experimental room or disturb the subject in any way until he awoke spontaneously in the morning or until his sleep was terminated artificially after an adequately long period.

The EEG and eye movement potentials were amplified and recorded by a four channel Grass Model III Electroencephalograph. All pens were set at the same gain and the EEG time constant was used throughout. Monopolar recording, either from scalp or eyes, was with reference to both ear lobes. In the first few experiments, one channel recorded the EEG monopolarly usually from a parietal electrode and three channels were used for eye movement potentials. One pen gave a bipolar record from a supra-orbital electrode above one eye to an infra-orbital electrode. The other two pens recorded monopolarly from the same two orbital leads referred to the ear lobes. Changes in the resting potential field, with reference to the electrodes, as the eyeball rotated were assumed to generate the observed electrical impulses. In this way it was felt that eye movement potentials could be accurately differentiated even in the extreme case of a very small movement against a high voltage EEG background. Brain waves, with the same gain on all pens, were of smaller amplitude with the bipolar arrangement (supra-orbital to infra-orbital) than with the monopolar, and were also in phase on the monopolar pens. Consequently, only eye movements gave the characteristic criteria of larger deflections on the bipolar pen and simultaneously out of phase smaller deflections on the monopolar pens. Vertical eye movements gave the largest potentials and movements in other directions varied approximately as the cosine of the angle of displacement from vertical.

It soon became apparent that such careful recording of eye movements was not necessary and subsequently they were recorded with either two pens monopolarly or one pen bipolarly allowing more pens to be used for EEG tracings. Also horizontal eye movement leads were frequently used, one on each outer canthus, because of the ease of their attachment. These gave the same differentiation criteria as the vertical leads. The usual technique was to definitely ascertain the presence of eye movements and then quickly switch so that three pens recorded the EEG from frontal, parietal, and occipital leads referred to the ears and one pen recorded from the eye bipoloraly.

Electrode resistances were checked before the subject retired and any electrode giving a reading above 10,000 ohms was reapplied. The resistances were then checked at the Grass machine irregularly throughout the night and it was found that they invariably remained less than 10,000 ohms.

Body motility was recorded by means of an attachment to the bed spring which registered a deviation on a moving tape when the subject stirred. Note was also made of body movement artifacts in the EEG record and the two sources were combined to give the final motility record.

The EEG machine was run continuously throughout the night. This was important because the EEG changes and eye movement periods frequently lasted only a few minutes and might have been missed entirely by intermittent sampling. A constant paper speed of the standard 3 cm. per sec. was impossible because of the prohibitive quantity of paper that would have been consumed in the 6-8 hours of recording. Therefore, whenever possible, the paper speed was slowed to 0.6 or 0.3 cm. per sec. The reliability of doing this was greatly enhanced by the fact of the experimenter's constant attendance, because the paper speed could be immediately increased when any change occurred or any question arose. Also, frequent confirmatory standard speed samples could be taken.

High voltage delta waves were easily identified at the slower speeds due to their wide amplitude band. Low voltage faster waves required a standard speed most of the time, but spindles with a moderate amount of delta activity could be identified at the slower speeds because of the wider band and because the experimenter could actually see and hear the characteristic movement and scratch of the pens while reproducing a spindle and could confirm this impression with frequent standard speed samples. The records were all carefully measured and judged at a later date in addition to the original on-the-scene judgments.

In order to facilitate the organization and analysis of the large amount of data from many experiments running continuously for hours, the categorization of the EEG patterns during sleep was somewhat simplified. Four categories or stages were used:

Stage 1. The essential characteristic was an *absolute lack of spindle activity.* In general, a low voltage, relatively fast pattern corresponding to the "B" stage of Loomis *et al.* and the "drowsy" stage of Gibbs, and including what the Loomis group called the "A" or interrupted alpha stage. Thus, any EEG pattern between full wakefulness and the appearance of spindles was included in stage 1.

Stage 2. Characterized by the presence of spindle activity with a low voltage background. A certain amount of slower activity was included in this stage in the 3-6 per sec. range. Gibbs' biparietal hump phase was also included although recognition of the humps was hindered by the unilateral recording. However, since this wave form is less prominent in the adult age group and in most cases was followed almost immediately by the appearance of spindles, its inclusion was felt justifiable. Careful distinction had to be made between spontaneous "K" complexes occurring in this stage and delta waves appearing in deeper stages. In general, the "K" complex or arousal response could be easily identified by its wave form and its widely spaced occurrence which caused it to stand out sharply against the low voltage, spindle background.

Stage 3. An intermediate stage characterized by the appearance of high voltage slow waves with some spindling superimposed. In borderline cases, records with an average of less than two waves over 100 μ V. and 1-2 c/sec. or slower on 10 sec. were assigned to stage 2 and records with more than half over 100 μ V. and 1-2 c/sec. or slower were assigned to stage 4.

Stage 4. At least half or more of the record dominated by waves of 100 μ V. or greater in the 1-2 c/sec. range or slower.

It should be emphasized that judgment was based on a fairly long stretch of record. Thus, if classifications were made of every few seconds of record, for example during a spindle stage, a spindle wave form might not occur in this brief period and the low voltage background would have to be assigned to stage 1. This would give the misleading impression of excessively frequent alternation between stages. Also, there was some tendency for delta waves to wax and wane and a few seconds of record during a waning phase would then have to be assigned to a different stage. In general, the judging of the record was a continuous, on-the-scene process.

RESULTS

I. The occurrence and interrelations of rapid eye movements, brain wave patterns, and body motility during a night's sleep.

In the first series of experiments, a total of 71 nights of sleep recordings was taken from 26 men and 7 women. The number of nights slept by each subject ranged from 1 to 7 with the majority being studied for 2 nights. The length of the sleep period averaged 6.5 hours and ranged from 2 to 9. In general, sleep was continuous except for occasional brief awakenings indicated by the appearance of a waking EEG pattern which usually followed gross body movements. These brief awakenings, as a rule, were not recalled by the subjects on the following morning. For purposses of analysis, if the awakening was prolonged more than a few minutes, the sleep period was considered terminated. Awakenings lasting more than a few seconds were easily identified by, in addition to the waking EEG, persistent muscle potential and movement artifacts, blink artifacts, and often the subject's calling out. The occasional brief bursts of waking EEG following body movements did not show these artifacts.

A. ***Eye Movements.*** Discrete periods during which their eyes exhibited rapid movements were seen in all 33 subjects every night they slept. The recorded eye movement potentials varied from just discernible up to several hundred microvolts. From controls it was seen that a 100 μ V. deflection corresponded roughly to a movement through a 20 degree arc in the plane of the electrodes. A single movement was executed in about O.1-0.2 sec. and was followed by a fixational pause of varying duration. Several experiments with electrodes around both eyes confirmed that the movements were binocularly synchronous and that they occurred in all directions. The size, direction, and amount of the movements varied widely and irregularly from moment to moment and period to period. In general, the movements tended to occur in clusters which were grouped together into a rapid eye movement period. However, the movement was sometimes virtually continuous throughout such a period and at other times exceedingly sparse. As a rule, the relative quiescent intervals between clusters of movement varied from several seconds to several minutes. Quiescence of more than 5 min. almost invariably signaled the end of a rapid eye movement period, and then no movements were seen until the onset of the next period. . . .

No Rapid Eye Movements were seen During the Onset of Sleep in the Subjects Studied. Table I summarizes the data concerning successive eye movement periods throughout the night for this group of experiments. It should be noted from the mean durations that the eye movement periods tended to be longer the later in the night they appeared. In general, 4 eye movement periods were seen in 6 hours of sleep. Because of the small number of nights where sleep lasted longer than 6-7 hours only a few fifth periods were seen and in just one night's sleep lasting 9 hours was a sixth eye movement period observed. The shortest quiescent interval between eye movement periods was 36 min. The range of duration of eye movement periods was quite large, 1 to 72 minutes. The range of time of appearance after the initial sleep onset increased for each successive period due to temporal dispersion. Calculated on the basis of the first 6 hours of sleep, the average total time taken up by eye movement periods was 64 min. or 17.7 per cent. The percentage would, of course, be larger for sleep durations of 8 hours or more, since the longer eye movement periods generally occurred during the later portions of the night. For reasons to be discussed later, if sleep showed a persistent lightening at about 1 hour after the initial onset without the appearance of eye movements and then deepened again, the first eye movement period was tabulated with the group of second eye movement periods. This occurred in 15 of the 71 nights in records from 11 subjects.

A small series of control experiments was done to test the possibility that the lack of eye movement potentials at certain times was due to marked decrease of the resting potential of the eye. Subjects were awakened by a buzzer during these periods and according to previous instruction immediately began moving their eyes back and forth between two dim lights above the bed. In all cases, the eye movement potentials that appeared within 3 to 10 sec. after the onset of the noise were comparable in amplitude to those seen during both sleep and wakefulness.

TABLE I
TIME OF FIRST APPEARANCE AND DURATION OF SUCCESSIVE EYE MOVEMENT PERIODS

Eye Movement Period	*Minutes after Sleep Onset*		*Duration*	
	Range	*Mean*	*Range*	*Mean*
1st	45-118	67	1-36	9
2nd	107-222	156	2-54	19
3rd	180-340	253	4-72	24
4th	257-412	338	4-66	28
5th	300-420	404	30-39	34

B. ***Electroencephalographic Findings.*** The EEG showed a strikingly consistent relationship to the rapid eye movement periods. The only pattern seen while the eyes were moving was stage 1, a low voltage, non-spindling EEG. This stage invariably persisted throughout the entire eye movement period, including the intervals of relative ocular quiescence between clusters of movement, and also throughout the entirety of periods with very sparse amounts of movement. Rare exceptions to this occurred when the EEG changed briefly to stage 2 in the middle of an eye movement period. No actual eye movements ever coincided with the stage 2 EEG, however, and the reappearance of eye movements was always accompanied by a reversion to stage 1. This "slipping" down to stage 2, when seen, usually happened during the first eye movement period and almost never occurred later in the night.

The stage 1 EEG persisting throughout the eye movement periods showed considerable variation within this classification. Generally a low voltage, irregular pattern, there were also many bursts or trains of regular 7-10 per sec. waves in the occipital leads, and 18-25 or 5-7 per sec. waves in the frontals. Although all these variations were usually seen in every subject, the occipital regular waves were more common in subjects with a prominent waking alpha rhythm and were characteristically 1-2 c/sec. slower than the waking frequency. The frontal "beta" waves were more common in non-alpha subjects. These synchronous patterns were somewhat more prominent in the intervals between clusters of eye movements and often seemed to be disrupted or "blocked" by the eye activity. As far as could be seen, the EEG patterns accompanying an eye movement period 1 hour after the onset of sleep were no different from those accompanying eye movements 6 or 8 hours after the onset of sleep. . . .

All the stage 1 EEG variations accompanying eye movements were also seen during the stage 1 EEG at the initial onset of sleep. The only distinction was that at the sleep onset the different patterns of the stage 1 classification appeared in a fairly orderly sequence as part of a steady progression from a waking EEG to deeper stages, whereas, during eye movement periods the stage 1 level was maintained for lengthy intervals, and variations within the stage occurred more or less at random.

The eye movement periods and sleep onset accounted for nearly all the stage 1 patterns. The only other times that they appeared in the records were: *(a)* following the cessation of eye movement periods but progressing quickly to stage 2; *(b)* often following large body movements for a few seconds; and *(c)* during the return to sleep after occasional brief spontaneous awakening. Of course, when the body movement or brief awakening occurred at a time when an eye movement period was about due, the stage 1 EEG could persist if rapid eye movements actually appeared. With the above exceptions, the interspersed periods of ocular quiescence were always associated with the "deeper" stages, 2, 3, and 4.

As the rapid eye movement periods occurred at regular intervals, so the EEG during the night showed a regular and concomitant variation. These regular sequences of variation were termed cycles. The definition of the first cycle was from the onset of sleep to the end of the first eye movement period, the second cycle was from the end of the first eye movement period to the end of the second and so on throughout the night.

The usual sequence was that after the onset of sleep, the EEG progressed fairly rapidly to stage 4 which persisted for varying amounts of time, generally about 30 min., and then a "lightening" took place. While the progression from wakefulness to stage 4 at the beginning of the cycle was almost invariably through a continuum of change, the "lightening" was usually quite abrupt and coincident with a body movement or series of body movements. After the termination of stage 4, there was generally a short period of stage 2 or 3 which gave way to stage 1 and rapid eye movements. When the first eye movement period ended, the EEG again progressed through a continuum of change to stage 3 or 4 which persisted for a time and then lightened often abruptly with body movement to stage 2 which again gave way to stage 1 and the second rapid eye movement period. This cyclic variation in the EEG recurred repeatedly throughout the night. The slowest, highest voltage waves were usually seen in the first cycle and stages 3 and 4 were only occasionally reached during cycles following the second. As a rule, cycles after the second were characterized by a progression only to stage 2 which persisted until the next eye movement period and stage 1. However, this was partly an artifact of the EEG categorization since even in these cases there was obviously a progression to a "deeper" stage 2 and then a change to a "lighter" stage 2 before the onset of stage 1. There were, of course, many irregularities in the smooth sequence of events just described. Upward changes in the EEG often occurred in the middle of the cycles concomitant with body movement only to settle back to the previous level.

Occasionally, when the upward change of the first cycle occurred, it reached a very light stage 2 which persisted for many minutes *without* giving way to stage 1 and rapid eye movements and then deepened again to stage 3 or 4. When this happened, the middle of the period of the stage 2 EEG was considered to be the end of the first cycle with the interpretation that the mechanism usually inducing the upward change to stage 1 was not active enough to get beyond stage 2. This occurred about 20 per cent of the time in this series of experiments. Eye movements never failed to appear, however, toward the end of the second cycle. . . .

The distribution of the occurrence of spontaneous "K" complexes showed interesting peculiarities. As has been observed by others, this wave form appeared most frequently during periods of a low voltage spindling EEG. However, it was generally of greater amplitude and more frequent during the stage 2 EEG preceding an eye movement period than following. In fact, the stage 2 EEG following eye movement periods was often devoid of "K" complexes.

C. ***Body Movement.*** Body movements occurring during sleep were grouped into two categories, major movements and minor movements. The former were any movement resulting in a change in position of the whole body and the latter included any other detectable movement, usually stirrings and limb movements. In general, each type of movement simultaneously gave characteristic deflections on the motility recorder and artifacts on the EEG. However, small limb movements often appeared only on the motility recorder and chewing, sucking, and small head movements appeared only as EEG artifact.

During EEG stages 3 and 4, major movements were invariably accompanied by an upward EEG change which persisted for at least a minute or two and, as has been stated, often represented the upward swing of a cycle. Minor movements were frequently, but not always, accompanied by upward EEG changes. During stage 2, major movements usually resulted in a fleeting appearance of stage 1 or waking EEG while minor movements caused little apparent change and were usually followed by an immediate reappearance of spindling.

. . . The EEG stages, incidence of rapid eye movements and body motility during each successive 6 min. period after the onset of sleep were added and averaged for all 71 nights. Even without complete control over certain factors that might have disturbed the sleep pattern, such as the chance occurrence of excessive noise outside the building, and environmental temperature and humidity changes, a clearcut, regular, cyclic variation in EEG and eye movements was seen for the group with the peaks of eye movement related to the peaks of the EEG cycle. A concomitant variation in body motility is suggested.

Since the cycle lengths tended to vary with the subject, the lining up of all the nights in terms of the sleep onset resulted in a considerable amount of phase interference between individual cycles. . . . In addition to a more sharply defined EEG-eye movement relationship, it now can be clearly seen that the incidence of gross body motility also undergoes a cyclic variation.

. . . During the actual experiments it was seen that rapid eye movement periods often started immediately after a series of body movements and that a body movement often coincided with their termination while the sleeper seemed relatively quiet during the eye movement period itself. A graph of the incidence of body motility with reference to the onset and termination of eye movement periods was made . . . and it was seen that the incidence rose to a peak, dropped sharply at the onset of eye movements, and rebounded abruptly as the ocular activity ceased.

On seven nights, the experimenter sat near the bed and watched the subjects throughout the entire night with the aid of a dim light, making notations of the occurrence and quality of the body movements and their duration. These observations confirmed what has been stated, but in addition, it was noticed that during rapid eye movement periods numerous very small distal limb and digital movements occurred which did not register on either the EEG as artifacts or the motility recorder as deflections. Thus, although gross body and limb movements were decreased during rapid eye movement periods, there seemed to be a unique increase in very fine movements which were almost entirely absent during the interspersed periods of ocular quiescence.

II. Stage 1 EEG without eye movements.

It was mentioned previously that no rapid eye movements were seen during the onset of sleep when the EEG passed through stage 1 in going from the patterns of full wakefulness to the spindle and delta stages, although this stage 1 EEG seemed to be identical with those occurring later in the night concomitant with actual eye movements. Since the later stage 1 patterns are apparently associated with dreaming (Dement and Kleitman 1957), it seemed desirable to investigate the stage 1 EEG at the sleep onset with regard to dream activity in spite of the lack of rapid eye movements.

Ten subjects were awakened a total of 50 times by a buzzer while the EEG showed patterns within the range encompassed by the category, stage 1, during the initial onset of sleep and in addition, were occasionally awakened during rapid eye movement periods later in the night. They were asked to give their impressions of what had been in their minds before the awakenings and, if possible, to differentiate between the state of mind preceding the early versus the later awakenings.

In all cases, the subjects felt that, although the mental content during the onset of sleep was often "dream-like," it was distinctly different from an actual dream. They invariably stated that they were not asleep and that the mental imagery was not as organized or "real" as that occurring in dreams. A variety of images and sensations were described that might be called hypnagogic, such as "floating," "drifting," "flashing lights," etc. The later eye movement, stage 1, awakenings generally elicited dream recall and the impression of having been "really asleep."

A further test of the difference between the two phases was done by examining the auditory thresholds necessary to elicit a response from the subjects. The stimulus was a 1000 cycle tone sounded for 10 sec. and the response was clenching the jaw 3 times which gave easily identified muscle potentials in the EEG record. If no response was obtained, the intensity was raised slightly and the stimulus was repeated after one minute had elapsed. This procedure was continued until the subject responded. Intensity was calibrated in terms of voltage across the loudspeaker.

A total of 32 responses was obtained from the 10 subjects during the stage 1 EEG at the onset of sleep and 26 responses were elicited during the stage 1 EEG periods accompanying eye movements later in the night. The threshold ranged from 0.1-0.4 V. at the sleep onset and 1.0-1.8 for the later awakenings. The difference of the means was significant at the $p<.001$ level. Further attesting to the significance of this difference was the fact that the stage 1 EEG at the sleep onset was always allowed to progress to a complete disappearance of alpha rhythm while the EEG at the time of the stimulus during rapid eye movement periods often contained considerable amounts of alpha activity.

III. Individual differences in normal sleep.

Four subjects were further studied for from 12 to 16 nights per subject in a third group of experiments to obtain some information regarding individual differences. . . .

Certain individual characteristics and differences were apparent. Two subjects . . . showed a striking regularity in the pattern of occurrence from night to night, while the other two were less consistent, . . . Apparently the actual time at which they went to sleep was not important since for the former two it ranged irregularly over about 3 hours and oddly enough, for the latter two it was at nearly the same time every night. One subject . . . was unique in that rapid eye movements never appeared during the first "lightening" or upswing of the EEG cycle. . . . In general, it appeared that individual subjects were somewhat more regular than the group as a whole.

DISCUSSION

Regularly occurring periods of rapid, conjugate eye movements were recorded without exception during each of 126 nights of undisturbed sleep. The periods of eye movements were invariably concomitant with a characteristic EEG pattern, stage 1, while the interspersed periods of ocular quiescence always showed "deeper" patterns, stages 2, 3, and 4. The same results were obtained in an additional 20 nights during which sleep was interrupted for the determination of auditory threshold and the presence of dream recall. The composite EEG for 71 nights from 33 subjects showed a regular cyclic variation with a period of about 90-100 min. and the regularity was even more striking when studied in terms of individual subjects.

This cyclic variation was reported in a preliminary communication (Dement and Kleitman 1955) after the accumulation of 43 nights of recording from 16 subjects. It should be mentioned that the composite histograms of EEG and incidence of eye movements for 43 nights were quite similar to those shown . . . for 71 nights. The inclusion of 28 nights' data from 17 additional subjects did not significantly alter the curves and it is likely that a further accumulation of recordings would add little to the results.

The basic mechanism of such a regular occurrence of eye movements (dreaming) and associated EEG variation is unknown. However, its prototype may exist in infants (Aserinsky and Kleitman 1955) as an observed rest-activity cycle during sleep with a period of approximately 60 min. The greater cycle length seen in adults resembles the lengthening of other physiological cycles, i.e., cardiac and respiratory, and may be related to their lower basal metabolic rate. In any case, the regularity and apparent universality of this sleep cycle in adults indicate that it is an intrinsic part of the sleep pattern rather than a result of external disturbance.

A close perusal of the all-night EEG graphs published by Loomis *et al.* Knott *et al.,* and Diaz-Guerrero *et al.* reveals a tendency toward this type of cyclic variation. Henry found that 20 per cent of the EEG during a night's sleep was occupied by a low voltage pattern which is almost identical with the percentage of stage 1 found in this study. It seems possible that sampling techniques rather than continuous recording, miscategorization of the EEG due to eye movement potentials appearing in brain wave leads, and disturbances of the subjects may have been responsible for these authors not noting the marked regularity described here. Long periods of low voltage EEG called "null" by Blake and Gerard and "early morning sleep" by Gibbs probably represent the lengthy rapid eye movement periods often occurring toward the end of the sleep period. It is also gratifying to note that Brooks *et al.* have recently published graphs of the mean EEG showing cyclic variations in depth of sleep that are similar to the results previously reported by us (Dement and Kleitman 1955) and further extended in this paper.

In the study of rapid eye movements and dreaming (Dement and Kleitman 1957) it was suggested that eye movements should be the criterion of the presence or absence of dreaming and they were used as such in this study. However, it should be pointed out that the EEG is actually a better criterion. Thus, *with the exception of the initial onset of sleep,* a persisting stage 1, non-spindling EEG seems to be invariably concomitant with dreaming while the amount of eye movement may be large or small depending on the actual imagery of the dream.

As stated, the only significant occurrence of stage 1 EEG patterns not accompanied by rapid eye movements was found at the onset of sleep. However, the auditory thresholds were still quite low at these times, and awakenings elicited descriptions of what may be called hypnagogic reveries and the feeling of being still awake. On the other hand, the stage 1 periods later in the night were invariably associated with eye movements, raised auditory thresholds, dream recall, and the feeling of having been "really asleep." The difference probably has to do in part with a persisting awareness of being awake in the former case, whereas the dream periods generally followed an interval of deeper sleep and thus the sleepers had no such cue to tell them the dream hallucinations were not real. They therefore behaved as though they were real, at least to the extent of executing appropriate eye movements. The raised auditory thresholds may have meant either that the subjects were too engrossed in the dream content to notice outside stimuli or an actual difference in auditory excitability.

The incidence of stage 1 EEG patterns and rapid eye movements during undisturbed all night sleep and the quantity of dream recall obtained by awakening subjects during these periods (Dement and Kleitman 1957) suggests the normal occurrence of a much greater amount of dreaming than was heretofore realized, both in the invariability of its presence from night to night and in its frequency and duration in a single night. Previous estimates of incidence of dreaming, which were generally based on recall obtained after morning awakenings, have varied from once a night to almost never . . . In contrast, as many as 5 or 6 lengthy dreams have been frequently described after awakenings during eye movement periods even by subjects who previously stated that they "never dreamed."

It is apparent then that most of the dream experience in normal sleep is never recalled. That which is recalled can probably be accounted for by the fortuitous interruption of dreaming, as for instance when the alarm clock goes off in the morning. It should be noted from the incidence of rapid eye movements later in the night . . . that the chances of the alarm clock interrupting a dream are very good. The level of consciousness represented by dreaming would thus seem to be associated with a very short memory span, perhaps in some way analogous to that seen in very young children and in old people, who often have difficulty in recalling recent events. In some instances, even when the dream content was reported clearly and coherently after an awakening during an eye movement period, a re-description in the morning was fragmentary and distorted.

Several points of interest are seen when the results of the earlier study where subjects were awakened to elicit dream recall (Dement and Kleitman 1957) are compared to the results of this study on uninterrupted sleep. In the earlier study, subjects were awakened an average of 6 times a night or about once an hour. The main effect of these awakenings was a more frequent occurrence of eye movement periods. This was clearly seen in one subject who served in both the earlier study and this one. . . . he showed an average of about one eye movement period every 110 min. When his sleep was interrupted, he averaged one eye movement period every 70 min. over 11 nights. This reduction in cycle length seemed to be due to the artificial termination of the eye movement periods by an awakening when their duration was much less than their average in undisturbed sleep.

As a rule, eye movements did not immediately recur upon the return to sleep. In 191 awakenings during eye movement periods in the earlier study, there were only 16 instances of recurrence. Interestingly enough, 12 of the 16 were preceded by 1-5 min. of stage 2 sleep without eye movements, and 9 of the 16 were occasions when the subjects were unable to remember dreams and thus only had to say, "I don't remember", before going back to sleep. Furthermore, it was noted in the part of this study concerning auditory thresholds, where the subjects had only to clench their jaws three times, that eye movements recurred much more often, about 50 per cent of the time. It seemed that when the subjects had to awaken fully and describe a dream, the return to sleep generally was more like the initial sleep onset and a new cycle was initiated, whereas a brief or "partial" awakening often allowed the eye movements to continue. Awakenings during the interspersed periods of ocular quiescence seemed to have little effect, in that eye movements neither started on the return to sleep nor was the time of onset of the next eye movement period markedly changed from what would have been expected in the absence of an awakening. One explanation for this minimal effect could be that ocular quiescence was concomitant with deeper sleep (EEG stages 2, 3, and 4) and since the inability to recall dreams meant a relatively short period of wakefulness, the subjects were able to return to the deeper levels of sleep without disturbing the cycle pattern.

The deepest sleep in terms of EEG patterns was usually seen in the first hour and nearly all the high voltage delta activity occurred in the first three hours. This parallels depth of sleep curves in terms of eye movement incidence, auditory arousal threshold, . . . and in a general way, body motility, but not curves in terms of heart rate, skin resistence, and body temperature. . . . Also, body motility incidence did not consistently parallel the brain wave patterns in this study. Although it was lowest during stage 4, more movements were actually initiated in the presence of stage 2 patterns than during stage 1. Depth of sleep would seem to be a rather elusive characteristic which differs according to the specific variable used to describe it.

EEG and Consciousness. One of the most intriguing properties of the electroencephalogram has been the close correlation of some of its characteristic patterns with certain functional states of the organism. It has always been hoped that clarification of the mechanisms producing these patterns would yield insight into the neural basis of the functional states with which they are associated. An example in which these hopes have been at least partially realized can be seen in recent work on the brain stem activating system. Since stimulation of the reticular formation was found to elicit an EEG pattern associated with the waking state, while its ablation gave patterns generally associated with somnolence, the system was said to function in maintaining wakefulness. Without the correlation of EEG pattern and functional state, such a conclusion could not have been made.

One would like to use the EEG in a similar way to aid in defining the neural basis of consciousness. Of course, this immediately presents the very difficult problem of formulating an adequate definition of "consciousness." In the past, this obstacle has often been side-stepped by equating consciousness with wakefulness and unconsciousness with sleep. In addition to avoiding semantic entanglement, this device would seem to afford the advantage of conveniently relating levels of consciousness at least grossly to brain wave patterns. However, such a definition is in reality of little value because it tends to result in mere repetitious discussion of what is known about the neural basis of wakefulness, substituting for it the word "consciousness."

It should be noted that sleep and wakefulness, as states, can be objectively observed and to some extent measured. They can be compared and contrasted, and they can usually be distinguished from each other by simple inspection. In consciousness, on the other hand, the sleep-wakefulness dichotomy is absent. There is only one state whose criteria are mainly subjective, though partly objective, as the observer is able to make some inferences. One may omit the use of the term unconsciousness and merely refer to levels of consciousness varying from zero to a high level, depending upon the communications and performance of the individual.

Even with a very simple description of consciousness, i.e., the ability to analyze, integrate, and subsequently recall experience, it is obvious that a high level of consciousness is not always limited to wakefulness, nor does sleep always imply a very low or zero level of consciousness.

New-born infants, anencephalous children, and decorticate dogs or cats may exhibit wakefulness, but their level of consciousness is close to, if not at, zero. In delirium, fugues, icteral or post-icteral automatism of psycho-motor epilepsy, a person may be judged to be behaviorally awake, but his level of consciousness is very low.

Of course, the above examples are special cases, but the converse, consciousness during frank sleep as represented by the level of analysis, integration, visual imagery, and subsequent recall seen during dreaming, is virtually universal and quite normal. Since dreaming in the past was said to occur during all the EEG levels of sleep, one had to conclude that at least in sleep there was no particular relation between brain wave patterns and consciousness, and that the neural functioning, whatever it might be, underlying the production of spindles and high voltage slow waves, as well as low voltage patterns, was compatible with this degree of mental activity.

That this lack of relation between brain waves and consciousness, as represented by dreaming, is not the true picture seems clearly indicated by this study. It was seen that the rapid eye movements during sleep, which almost certainly are concomitant with dreaming, occurred when, and only when, the EEG was "above" the spindling stage—that they were uniquely associated with a stage 1 EEG. Consequently, whatever its level during dreaming, consciousness ceases or at least falls below this level, in the normal course of events, when spindling appears in the EEG.

The hypnagogic reveries in falling asleep also apparently cease when the EEG reaches the spindling stage. Davis *et al.*, in several hundred awakenings, elicited all sorts of reports of images and sensations from subjects whose EEG patterns had not progressed beyond their "B" stage, but when the "C" stage (spindling) appeared, awakenings no longer elicited hypnagogic recall and subjects said they were "really asleep." These findings were confirmed in this study.

With dreaming and hypnagogic reverie assigned to a definite EEG stage, there exists at least a fairly consistent relation between the EEG and levels of consciousness and it becomes possible to undertake the second step of considering the neural origin of these patterns as representing the basis of consciousness itself.

An examination of the mechanism of spindling would seem to be the most fruitful point of departure. In the first place, the appearance of sleep spindles represents a rather sharp, all-or-nothing type of brain wave change. They are either present with a wide distribution and a characteristic frequency and wave form (although there are topographical differences in frequency) or they are not seen at all. Secondly, their appearance or disappearance appears to be associated with a sharp change in the level of consciousness.

Although no completely satisfactory explanation has been extended for the mechanism of sleep spindles, it seems to be generally agreed that the integrity of certain subcortical structures is necessary. Spindling was found to be suppressed in humans after subcortical vascular accidents and prefrontal lobotomy, and in a patient with thalamic syndrome. Subcortical lesions in cats also seem to disrupt the appearance of spindle patterns. If barbiturate bursts and recruiting responses are considered analogous to normal sleep spindles rather than alpha rhythm, as is suggested by Ralson and Ajmone-Marsan, then the role of the thalamus becomes very compelling.

It should be pointed out that even though the spindles may represent the synchronous activity and influence on the cortex of a diffuse thalamo-cortical system, disturbance of the pattern does not necessarily imply that the system has been totally destroyed nor that it is completely functionally incapacitated. That several similar systems exist together, in humans at least, was indicated by Lennox and Coolidge who found that prefrontal lobotomy with probably subsequent degeneration of nucleus centralis medialis of the thalamus only affected the frontal 12/sec. spindles and left 14/sec. spindles unimpaired in both parietal and frontal regions. Thus, although the spindle patterns might be disturbed, it would probably take far larger lesions to totally destroy the systems that produce them, and such lesions would probably be incompatible with consciousness.

Some sort of diffuse diencephalic-cortical integrating system has been hypothesized by Penfield as a necessary component of conscious activity. If the synchronous patterns of spindling may be said to represent functional inactivity in such a system, assuming that during mental processes neural activity is essentially random, then the relation of the spindle patterns to consciousness becomes neurologically meaningful. That the waking EEG lacks spindles and is usually correlated with a high level of consciousness is well established. The results in this paper indicate that all periods of non-spindling EEG during sleep are also correlated with consciousness either as dreaming or hypnagogic reveries. The appearance of spindling signals a drop in the level of consciousness and is concomitant with functional inactivity (i.e., synchronicity) of a diffuse subcortical-cortical integrating system.

The mere appearance of synchronous waves in the cortex by itself, however, certainly does not necessarily mean functional inactivity. A synchronous, persistent alpha rhythm may be present during very complex mental activities. The waves at the cortex more probably represent variations in membrane potentials, possibly in the dendritic layers, rather than synchronicity of actual nerve impulses. However, if the waves are due to sub-cortical influences, then there is almost certainly a synchronicity in nerve impulses ascending to the cortex. Thus, the presence of regular variations in cortical potential, as in alpha rhythm, may influence but not necessarily hamper the random flow of nerve impulses during thinking, whereas synchronous barrages of nerve impulses in diffuse projection systems might mean that the neural elements are unavailable for the essentially random firing of high level integration. It might be added that since there is no evidence of any consciousness during the deepest stages of sleep characterized by predominance of 1-2 sec., high voltage waves, the relative lack of spindling at this time is more likely a further depression of these systems rather than their activation.

The brain stem activating system is also very probably involved in producing the periods of rapid eye movement. Certainly the stage 1, low voltage EEG seen during these periods is at least partially "activated". The regions of the brain stem that produce activation of the EEG in animals apparently include both the bulbar ventromedial inhibitory and facilatory reticular areas of Rhines and Magoun and Magoun and Rhines. In this study, it was seen that the incidence of gross body movement was decreased during rapid eye movement periods. This may mean that mainly the inhibitory area was active at these times. A teleological basis might be that the dreamer is fixed or arrested by his preoccupation in the dream picture, analogous to the way one is held in motionless fascination by an exciting movie. Of course, it does not account for the objective stillness of the dreamer when he is executing some violent movement in the dream, such as running, fighting, etc.

It appears to be possible in certain cases to produce a dissociation between the EEG and objective behavior. Wikler found after injection of atropine in dogs that the animals "were definitely 'excited' and had to be restrained to permit recording, at a time when the 'sleep patterns' were evident in the EEG tracing", and Rinaldi and Himwich saw stable sleep patterns in curarized, atropinized rabbits even during apparent behavioral arousal. There is also one report in the literature of sleep patterns including spindles occurring in 6 behaviorally awake humans suffering from narcolepsy, epilepsy, trauma, and schizophrenia.

On the other hand, patterns very nearly resembling those generally associated with full wakefulness, called "drowsy" patterns by Gibbs, "transitional" by Simon and Emmons, and "stage 1" in this paper, are seen at the onset of sleep, and also during the frank behavioral sleep with raised auditory threshold associated with dreaming. In addition, EEG patterns virtually indistinguishable from waking patterns have been observed to occur periodically in tracings taken in this laboratory from cats during a lengthy interval of normal, unsedated sleep.

Thus, as has been pointed out, consciousness may vary independently of sleep-wakefulness behavior, and likewise, EEG patterns may be in some cases dissociated from behavioral sleep and wakefulness. A consistent parallelism between levels of consciousness and EEG patterns is difficult to establish but may exist. In at least three qualitatively similar mental states, the EEG appears to be identical. One, dreaming, is seen during frank behavioral sleep. Another is represented by the hypnagogic reveries occurring in the transition between sleep and wakefulness. The third is from the very interesting McGill "boredom" studies where subjects showed the appearance of minimal slow wave activity and a slight decrease in the frequency spectrum of alpha rhythm while awake but mentally disorganized and actively hallucinating. These EEG changes would seem to resemble those described in this paper as characteristically associated with dreaming. An even lower level of consciousness probably existed in the wakeful, atropinized animals showing sleep EEG patterns. In view of these considerations, it would appear that behavioral criteria should take precedence in determining the presence of sleep or wakefulness, whereas the electroencephalogram may be more closely related to levels of consciousness.

SUMMARY

In 33 adults, discrete periods of rapid eye movement potentials were recorded without exception during each of 126 nights of undisturbed sleep. These periods were invariably concomitant with a characteristic EEG pattern, stage 1.

Composite histograms revealed that the mean EEG, eye movement incidence, and body movement incidence underwent regular cyclic variations throughout the night with the peaks of eye and body movement coinciding with the lightest phase of the EEG cycles. A further analysis indicated that body movement, after rising to a peak, dropped sharply at the onset of rapid eye movements and rebounded abruptly as the eye movements ceased.

Records from a large number of nights in single individuals indicated that some could maintain a very striking regularity in their sleep pattern from night to night.

The stage 1 EEG at the onset of sleep was never associated with rapid eye movements and was also characterized by a lower auditory threshold than the later periods of stage 1. No dreams were recalled after awakenings during the sleep onset stage 1, only hypnagogic reveries.

No. 28

THE RELATION OF EYE MOVEMENTS, BODY MOTILITY, AND EXTERNAL STIMULI TO DREAM CONTENT*

WILLIAM DEMENT AND EDWARD A. WOLPERT

The phenomenon of dreaming has always occupied an important place in the study of human behavior. Questions such as, When do dreams occur? How long do they last? Does everyone dream?

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*Abridged from the *Journal of Experimental Psychology*, 55:543-553, 1958. Reprinted by permission of Dr. Dement and the American Psychological Association, Inc.

and many others have been the subject of much lively debate. Only recently, however, has it become possible to formulate answers to some of the more fundamental problems of dreaming in objective terms.

The first step in answering these questions was made by Aserinsky and Kleitman who observed periods of rapid, conjugate eye movements during sleep and tested the possibility that such eye movements were related to dreaming. These investigators found that *S*s awakened when rapid eye movements were present showed a high incidence of dream recall, and that awakenings when the eyes were quiescent elicited a very low incidence of dream recall. These findings were subsequently confirmed in both normal and schizophrenic *S*s, and a recent study [See Paper No. 26][1] appears to have conclusively established rapid eye movements as an objective criterion of dream activity. In the latter study, an 80% incidence of vivid, detailed dream recall was elicited from 9 *S*s after nearly 200 awakenings during periods of rapid eye movements over many nights of sleep. Only 7% recall was obtained after a comparable number of awakenings, randomly interspersed, when the eyes were quiescent. Of the 7%, the majority of instances of recall occurred when the awakenings followed the cessation of rapid eye-movement periods by less than 8 min., suggesting that such recall represented persisting memory of the dream related to the preceding eye-movement period, rather than dreaming during the period of ocular quiescence. In addition, it was demonstrated that the subjective estimate of dream duration and the amount of dream narrative correlated highly with the length of the rapid eye-movement period before awakening, and that the eye movements themselves seemed to be meaningfully related to the visual imagery of the dream.

By continuous recording of the EEG and eye-movement potentials of 33 adults during 71 nights of undisturbed sleep [See Paper No. 27][2] it was found that eye movements appeared without exception on each of the 71 nights and occurred regularly in relation to the lightest phases of a cyclic variation in depth of sleep as measured by brain-wave patterns. . . .

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[1] Inserted by the editor.

[2] Inserted by the editor.

In the studies to be described, several aspects of dreaming have been investigated with the aid of eye-movement and brain-wave recordings. In addition to obtaining information pertaining to specific problems, it was hoped that some of the advantages and shortcomings of this technique would be clarified.

METHOD

The *S*s were 14 men and 2 women. The same general procedure was followed throughout. The *S* reported to the laboratory a little before his accustomed bedtime. Two or three electrodes were affixed to appropriate areas of the scalp with collodion for registering brain waves and two or more electrodes were attached near the eyes to pick up eye-movement potentials. This electrical method of recording has been used by others to investigate the effect of drugs, stress, and diurnal variations on ocular coordination. In these studies, it was assumed that when the eyes moved, the spatial changes of their associated corneo-retinal potential fields with reference to the stationary electrodes, generated the observed potentials. The criteria of eye-movement potentials during sleep and their differentiation from brain-wave artifacts have been discussed at length elsewhere. . .

The *S*s slept in a quiet dark room. The lead wires, having been gathered together at the top of the head, ran as a single cord to the lead box. This arrangement allowed a full range of movement without entanglement and minimized any annoyance to *S*.

A Grass Model III Electroencephalograph in an adjacent room was used to amplify and record the EEG patterns and eye-movement potentials. The machine was run continuously during the night except when *S*s were aroused. At these times, recording was interrupted in order to avoid excessive movement and muscle artifacts.

As a rule, *S*s were awakened during each successive eye-movement period. . . . In this way, four or five dream narratives were obtained in a single night. Because it was impossible to predict how long eye-movement periods might last, they were usually interrupted by an awakening from 5 to 20 min. after their onset, values somewhat less than their average duration in undisturbed sleep. The ringing of a doorbell, sufficiently loud to ensure an abrupt termination of sleep, was used as the arousing stimulus throughout these experiments. Upon awakening, *S*s described the content of their dreams, speaking into a tape recorder or dictaphone placed near the bed. The recordings were later transcribed for further analysis and study. A total of 204 transcriptions was accumulated including some obtained in a previous study. In a few cases, *E* merely entered the room and made notes as *S* spoke. This procedure was used when only one aspect of the dream content was of interest, such as whether or not an outside stimulus had been incorporated. Special procedures will be described in the appropriate sections of the results.

RESULTS

A few general remarks concerning the dream recall obtained in this study might be made to facilitate understanding of the results. The incidence of recall after awakenings during rapid eye-movement periods was about the same, 80%, as has been previously reported. In order to gain maximum recall, *S*s had to focus their attention on the dream content as soon as they were aware of being awake. An abrupt arousal seemed to aid this process, and if they were distracted from the task of remembering for even a few seconds, the dream was often forgotten.

The *S*s were usually allowed to describe their dreams in their own way. This, of course, resulted in considerable variation in the narratives depending on *S*'s loquacity or propensity for detailed description, and on the relative importance attached to different elements of the dream. Thus, one *S* might merely say that he had been walking down a street, while another might give a detailed account of the buildings and people on the street, the weather, and so forth. In general, it seemed that relatively neutral experiences tended to be glossed over while more exciting ones were described at great length. It is also likely that many dreams were more tersely described than they might have been because of *S*s' desire to get back to sleep as soon as possible. Questions on certain points after *S* had finished talking would invariably elicit more detail.

Dreams and Body Movements. It has been previously observed [See Paper No. 27][3] that the cessation of eye-movement periods was often accompanied by a large body movement on the part of the sleeper, and that during the eye-movement periods the incidence of gross body movement was markedly lower than during the adjacent intervals. This suggested the possibility that body movements interrupting eye-movement periods, yet followed by additional ocular activity, might mark the end of one dream sequence and the beginning of another.

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[3] Inserted by the editor.

In order to test this possibility, the dream transcriptions were carefully screened for examples of either long narratives of smoothly related, continuously progressing events, or accounts consisting of two or more distinct, seemingly unrelated, dream fragments. Dreams that could unequivocally be placed in one of the two categories were relatively infrequent. Many were eliminated because of poor recording. Others did not obviously fit in either category. An example of the latter was when the dream contained an abrupt shift of scene, as from a restaurant to the home dining room, but with the same people remaining as central characters. Thus, it was neither smoothly continuous nor were the two scenes entirely unrelated.

A total of 46 dreams fulfilled the requirements of being long and continuous, and 31 contained two or more apparently unrelated fragments. The associated electrical recordings were then examined for the presence of artifactual signs of body movement and were separated into those in which no body movements occurred during the eye-movement period, and those containing signs of one or more body movements. A two-by-two contingency table (Table 1) was used in which the presence or absence of body movements was related to recall of continuous or fragmented dreams. From this analysis, it appears that long continuous dreams are more likely to be recalled in the absence of gross body movements while fragmented dreams are more likely to be recalled if the periods contain body activity.

Assuming the execution of a body movement actually marked the end of a discrete dream episode, it seemed possible that this fragment might be forgotten and the recall limited to the dream activity following the movement and preceding the awakening. With this in mind, the transcriptions were again scanned for narratives which were much shorter than would have been expected from the objective duration of the eye-movement period. In 45 instances, dream narratives after 10 to 20 min. of rapid eye movements were as short or shorter than those generally obtained after 4 or 5 min. of eye activity. It was found that in 37 of these 45 cases, a large body movement had occurred several minutes before the awakening.

TABLE I

RELATIONSHIP OF BODY MOVEMENTS TO DREAM CONTINUITY*

Body Movement	*Dream Continuity*				*Total*
	Fragmented		*Continuous*		
	Observed	*(Expected)*	*Observed*	*(Expected)*	
Present	21	(17.5)	14	(17.5)	35
Absent	10	(21)	32	(21)	42
Total	31		46		77

*10.83 is the critical point when $P = .001$, $df = 1$. In this sample $X^2 = 12.9$, $P < .001$.

As a result of these findings, it was decided to awaken *S*s during eye-movement periods just *after* a gross body movement was observed. This was done 10 times. In 3, no content was recalled, in 3, the dream was reported as usual, but in the other 4, the following very suggestive remarks were spontaneously made by *S*s:

A. "I had just come to the end of a dream, I think, but it was a natural transition point. I had been talking to a friend and . . . [dream described]. Then I had the feeling that the dream ended before I woke up."

B. "I don't know if I was awake when I heard the bell. The dream seemed to be over before the bell rang."

C. "I'm trying to decide if I was dreaming just when you woke me up. I guess I was . . . [described dream]. I kind of had this feeling that just about as I finished the dream just mentioned there seemed to be a kind of little blank space or something and then just a picture of a telephone or something [arousing bell]. I got the idea that I'd finished before the bell sounded."

D. "[Dream described]. I had the impression that the dream had reached its natural end, that the TV program I was watching had reached its fade-out point."

It is also worth mentioning that in one *S,* who was awakened during an eye-movement period that had a body movement every 2 or 3 min., the dream recall was extremely disjointed, consisting of six unrelated fragments. The *S* spontaneously commented that he couldn't understand why the dream was so "mixed up." All these findings indicate that body movements during dreams tend to signal a change in the dream activity.

Eye Movements and Dream Activity. The term "eye-movement period" used in this and in other communications, refers to a discrete interval of sleep during which rapid eye-movement potentials are seen in association with a characteristic low voltage, non-spindling, EEG pattern which persists unchanged throughout the entire period. Such periods are preceded and followed by intervals during which no rapid eye movements are seen and the EEG pattern is distinctly different, containing slow waves and sleep spindles. However, the degree of eye movement shows extreme variability during the period of ocular activity although the EEG pattern remains constant. Accordingly, it has been hypothesized that the variability in ocular activity depends on the specific activity of the dreamer within his dream, and therefore the physiological variables, amount and direction of eye movements, should allow prediction of the psychological variables, degree of involvement of the dreamer in the action of the dream and the spatial orientation of the dream activity, i.e., horizontal or vertical.

Amount of Ocular Activity as a Measure of the Degree of Involvement of the Dreamer in the Dream.—This series of observations was made in the attempt to test the hypothesis that those dreams physiologically characterized by frequent and large eye movements would be marked by an active participation of the dreamer in the dream activity, while those dreams characterized by infrequent and relatively small eye movements would be distinguished by passive participation of the dreamer.

In order to test this hypothesis independent of possible bias on the part of *E,* a series of dreams originally obtained for an entirely different purpose was utilized. The electrical recordings and dream transcriptions were separated after matching codes had been assigned to each. The *E*s first characterized the dream transcripts as "active" or "passive," discarding those dreams where the transcription was incomplete or too ambiguous for agreement. Of the 180 dream transcripts available, only 109 could be categorized on the basis of the content as either active or passive. Had the dreams been originally obtained for this purpose, the diminution in amount of data due to ambiguity could have been avoided by careful questioning. For the purposes of this study, active dreaming was taken to include those dreams in which the dreamer was an active participator in the events of the dream, whereas passive dreaming was taken to include those dreams in which *S* was quietly reflecting upon an event, talking quietly to another person, or watching an event occur, often from a distance, in which he took no active part. The greatest loss of data involved dreams in which it was not clear from the transcript whether the dreamer was watching the event or participating in it. A good example of such a dream, where ambiguity would exist unless clearly described, is the watching of a television program. The dreamer might describe considerable action although he was actually a passive onlooker, and the entire television screen could have been included in a single fixation of the eyes.

The transcriptions were then set aside and the eye-movement records were independently classified as either active or passive on the basis of the eye-movement potentials. . . . Those records containing a large amount of eye movement were called active and other records containing minimal eye movement were classified as passive. Specific criteria were set up to distinguish borderline records, but, as a rule, the differentiation was quite obvious. Only four of the records associated with the 109 dreams could not be classified because of an excess of confusing artifacts. Because of the fact previously mentioned, that several distinct dream episodes were often associated with a single eye-movement period, only the last episode in the content was classified, and therefore, also, only the last 5-10 min. of eye-movement potential record before the awakening. The dream classifications were then compared to the eye-movement ratings by means of a two-way contingency table (Table II). It appears from this analysis that eye-movement periods with minimal ocular activity are associated with passive dreams, while frequent and large eye movements are associated with active dreams.

TABLE II

RELATIONSHIP OF *S*'S EYE ACTIVITY TO RECALLED DREAM CONTENT*

Eye Movement	*Dream Content*				*Total*
	Active		*Passive*		
	Observed	*(Expected)*	*Observed*	*(Expected)*	
Active	38	(29)	20	(29)	58
Passive	5	(23.5)	42	(23.5)	47
Total	43		62		105

*10.83 is the critical point when $P = .001$, $df = 1$. In this sample $X^2 = 34.6$, $P < .00001$.

The Direction of the Eye Movement as a Direct Expression of the Spatial Orientation of the Dream Activity.—Actually, it is hypothesized that the eye movements seen in sleep are those that the sleeper executes in the dream. However, since eye movements and fixations are for the most part not conscious, they must be inferred from the activity that one is watching. Thus, vertical eye movements should result when one watches events taking place in a vertical plane. For very short events, a person can usually remember where he "looked," although he does not remember consciously executing the specific eye movement.

In order to test the hypothesis that rapid eye movements are an exact indication of the direction of the dream activity, the very last action reported by *S*, i.e., where he looked, was compared with the very last eye movement (or its lack) before the awakening. Six *S*s were studied over 10 nights of sleep using both horizontal and vertical electrode placements around the eyes. Control fixations were executed while *S* was awake to determine the potential form associated with each of the four directions of eye movement. Of 39 dreams elicited in this series, the last dream activity before awakening could be recalled in 23 instances with sufficient clarity to differentiate the direction of the last eye movement in the dream. The last eye movement in the record was identical with the last reported fixation in the dream in 17 cases. In one example of this procedure, the last recorded eye movement was downward. The last reported dream activity was picking up an object on the floor. In this case, as in others, the eye movement corresponded in direction to what would have been expected if the dreamer had carried out this action in real life. Since *S*s had to choose the correct movement from among five possibilities (up, down, right, left, none), the probability of attaining the 74% accuracy by chance alone was vanishingly small.

In addition to the above findings, two anecdotal examples similar to the others previously reported in support of this hypothesis have been obtained. The dreams were elicited after awakenings which followed an interval during which *only* vertical eye-movement potentials were seen in the record. (Instances in which either vertical or horizontal movement persists as a pure component are extremely rare.) In one, *S* was standing before a staircase leading up into a building. He was anxiously peering at the address which was carved in the sidewalk at his feet, and then looking up toward the top of the stairs. In the other, *S* was watching a blimp that hovered above him. The occupants of the blimp began dropping leaflets and *S* recalled alternately looking up at the blimp and down at the dropping leaflets.

Effect of Stimuli on Dreams. Since it is now possible to determine when *S* is dreaming by objective criteria, the effect of external stimuli can be more accurately assessed. In this study, three external stimuli were used: the sounding of a tone, flashing of a light, and a spray of cold water. These stimuli represented different modalities as well as different degrees of what might be called noxiousness, cold water being the most noxious of the three, and the pure tone the least.

The tone stimulus was a 1000-cycle pure tone sounded for 5 sec. The awakening threshold during eye-movement periods was previously determined and an intensity slightly below this threshold was used. In spite of this, the tone occasionally awakened the sleeper. The flashing of a 100-w. lamp placed where it would shine directly on the sleeper was the light stimulus. In these tests it was necessary to enter the sleeping room to be certain that *S* was lying with his face exposed to the light. The light flashes never awakened *S*. The third stimulus was a fine spray of cold water ejected from a hypodermic syringe. In several instances, *E* moved close to the *S* and allowed several large drops of water to fall on an exposed part. This stimulus most frequently awakened *S*s. In general the stimuli were given after eye movements and the characteristic EEG had appeared, and then *S*s were awakened by the doorbell a few minutes later.

It was not always easy to decide whether or not a stimulus had modified the dream. If a light had been flashed in *S*'s eyes, one might get a subsequent dream containing light simply because it was daytime. Consequently, one could feel certain that the stimulus had been incorporated into the dream only if there was an obvious modification at the appropriate time. If the eye movements had been present for, say, 10 min., the stimulus then applied, and the sleep allowed to continue for another minute, one would expect the modification to occur toward the end of the complete dream sequence.

TABLE III

INCORPORATION OF EXTERNAL STIMULI INTO REPORTED DREAMS

Stimulus	*Tests Without Awakening*	*Incorporations into Dream*		*Tests Resulting in Awakening*	*Modifications at Awakening*	
		No.	%		*No.*	%
1000-cps tone	35	3	9	5	0	0
Light flashes	30	7	23	0	0	0
Water spray	33	14	42	15	6	40
Arousing bell	0	0	0	204	20	10
Total	98	24	24	224	26	12

Table III summarizes the results of these experiments in which 12 *S*s participated. In addition to the above described stimuli, the available dream transcripts were analyzed to see how often the awakening doorbell had been incorporated. Examples of the types of modification seen were as follows:

A. Tone. The sudden intrusion of a brief, roaring sound into the dream. The dreamer was frightened and thought that there was either an earthquake or that a plane had crashed outside his house.

B. Light. The modifications included a sudden fire, a flash of lightening, seeing shooting stars, and a dream of *E* shining a flashlight into *S*'s eyes.

C. Water spray. Typical examples included sudden rainfalls, leaking roofs, and being squirted by someone.

D. Awakening doorbell. The most frequent incorporations were either the telephone or doorbell ringing just as *S* awoke.

None of the stimuli were markedly effective in modifying the dreams. The water spray was the most effective and the pure tone was the least, and it might be pointed out that the latter represented a relatively bland stimulus in contrast to the cold water.

The *S*s were also stimulated 15 times during the interspersed periods of ocular quiescence. The stimuli were divided equally among the three types. In no case was an eye-movement period initiated by an external stimulus and no dreams were recalled when *S*s were awakened shortly after the stimuli were given.

An atempt was made to test the effect of an internal stimulus. Three *S*s on five occasions completely restricted their intake of fluids for periods of 24 hrs. or more before sleeping in the laboratory. On all occasions they reported that they were very thirsty when they went to bed, and twice their thirst had reached distressing proportions with dry lips, inability to salivate, etc. Fifteen narratives were elicited under these conditions. In no case did the dream content involve an awareness of thirst or descriptions of actually drinking something. Ten dreams seemed completely unrelated to this internal stimulus, and five contained elements that might have been related to thirst as follows:

A. "I was in bed and was being experimented on. I was supposed to have malabsorption syndrome."

B. "I started to heat a great big can of—a great big skillet of milk. I put almost a quart of milk in."

C. "Just as the bell went off, somebody raised a glass and said something about a toast. I don't think I had a glass."

D. "While watching TV I saw a commercial. Two kids were asked what they wanted to drink and one kid started yelling, 'Coca-Cola, orange, Pepsi,' and everything."

E. "I was watching a TV program, and there was a cartoon on with the animals that are like those in the Hamm's beer advertisement."

The Course of Time in Dreaming. Because, in at least a few instances, stimuli were incorporated into the dream content without awakening *S*, it was possible to time short intervals of dreaming. The *S*s were stimulated during eye-movement periods by one of the methods described earlier, and after a precise interval of time they were awakened. In each of 10 instances, where the stimulus was incorporated and the subsequent interval was precisely timed, the amount of dream action in the interval between the modifying stimulus and the awakening did not vary far from the amount of action that would have been expected to take place during an identical time in reality. Several examples will suffice to illustrate this:

A. The *S* was sleeping on his stomach. His back was uncovered. An eye-movement period started and after it had persisted for 10 min., cold water was sprayed on his back. Exactly 30 sec. later he was awakened. The first part of the dream involved a rather complex description of acting in a play. Then, "I was walking behind the leading lady, when she suddenly collapsed and water was dripping on her. I ran over to her and felt water dripping on my back and head. The roof was leaking. I was very puzzled why she fell down and decided some plaster must have fallen on her. I looked up and there was a hole in the roof. I dragged her over to the side of the stage and began pulling the curtains. Just then I woke up."

B. The *S* was sleeping on his back. It was a hot summer night, and he was completely uncovered. An eye-movement period started, and after 5 min. cold water was sprayed on his feet and legs. One minute later he was awakened. The first part of the dream involved being in a room talking to some friends. Then, "two children came into the room and came over to me asking for water. I had a glass of ice water and I tipped the glass to give it to them. I was sitting, and I spilled the water on myself. The children wanted the ice and tried to grab it, but it slipped away. I got mad, because they were so greedy, and tried to shove them away from the chair. Then I got out of the chair and was going to change my pants. As I left the room I seemed to be in a school and I saw many children in the hall and I seemed to be late for a class. I was starting to climb up some stairs when the bell rang."

C. A third example is included because of its special interest.

It was obtained fortuitously. The *S* was standing by a record player in his dream listening to some music, intending to leave for home. "The doorbell rang and she asked me if I would answer it. I hesitated for a moment and, as I started to go, it rang again." In this instance *E*s finger accidently slipped off the awakening bell, and hence it was rung twice to rouse *S*. About 3 or 4 sec. elapsed between the two rings.

DISCUSSION

It is of historical interest that the possible relation of eye movements to dreaming was suggested in 1892 by George Trumball Ladd in an essay on visual dreams. This startlingly accurate hunch was not subjected to experimental testing, however, and it was many years later that Aserinsky and Kleitman actually demonstrated such a relationship. The results of the present study indicate that the eye movements are not only related to dreaming, but are a specific reproduction of the dreamer's visual activity, and that the examination of these eye movements enables prediction of certain elements of the dream content.

Gross body movements appear to be associated mainly with the termination of a dream period and with the end of dream sequences within the period. It cannot be stated definitely whether a body movement simply interrupts the dream, or whether the dream sequence reaches a natural termination and with it some inhibitory influence also ceases, thereby allowing a body movement to take place. The fact that the incidence of body movement was found to be higher in the intervals immediately preceding and following eye-movement periods suggests that the latter interpretation is more accurate. Also *S*s occasionally reported that the dream seemed to have reached a natural conclusion if they were awakened immediately after a body movement had occurred.

It seems somewhat paradoxical that, whereas the eye movements seem to be specifically related to the dream imagery, body movement does not. Although part of the objective stillness of the dreamer can be explained by assuming he is held fascinated by the drama of the dream, it is impossible to account for dreams in which the dreamer is running, fighting, etc. Since the eye movements so closely approximate movements carried out in the dream, one would expect that running or fighting dreams would be associated with at least rudimentary running or punching movements of the limbs. The only explanation one can offer at this point is that eye movements are apparently controlled from different cortical areas than most other movements, and for some reason the areas subserving the latter are not active during dreaming.

An old theory of dream causation is that dreams are initiated by outside stimuli. This notion seems untenable in view of the fact that when stimuli were given when the eyes were quiescent, neither eye movements nor dream recall resulted. Also, eye-movement periods occur regularly in the absence of any deliberate stimulation and entirely independent of chance stimuli such as noises outside the building, doors closing, and so forth.

Even if external stimuli do not initiate dreaming, the question of their importance in modifying the dream content must still be considered. In 1893, Calkins reported a careful analysis of 375 dreams obtained by introspection from two *S*s and found that only 33 contained elements that were traceable to actual physical sensations occurring during sleep. Weed and Hallam, repeating Calkins study, found only 20 of 381 dreams to have been influenced by external stimuli. On the other hand, Cubberly experimenting with constant tactile sensation applied by means of gummed paper to a restricted portion of the body during sleep, reported that in 95% of the dreams an effect could be seen either in the form of a general tenseness of the dreamer or as a tension of the particular part of the body on which the gummed paper had been placed. However, since Cubberly apparently was his own *S*, there is a strong likelihood that autosuggestion played a part in his results. The findings reported in the present study indicate that external stimuli are not markedly effective in modifying the dream content, but that some (cold water) are more effective than others (pure tone). Although external stimuli can at times interject a new element, the basis for the images and particular story of a dream must exist mainly within the dreamer.

Considerable differences of opinion exist regarding the course of time in the dream. The idea that a dream which appears to last many minutes may actually last but a few seconds is based mainly on a single type of evidence. Occasionally, dreams have been reported in which a lengthy series of events was logically related to an awakening stimulus. One of the most famous examples is a dream reported by Maury in which he was in Paris during the Reign of Terror. After witnessing a number of frightful scenes of murder, he was finally himself brought before the revolutionary tribunal. There he saw Robespierre, Marat, and other prominent figures of those terrible days. He was questioned, and condemned, and led to the place of execution surrounded by an immense mob. He climbed onto the scaffold and was bound to the plank by the executioner. The blade of the guillotine fell. He felt his head being separated from his body, woke up in extreme anxiety—and found that the top of the bed had fallen down and had struck his cervical vertebrae just in the way in which the blade of the guillotine would actually have struck. Since in this and other examples, the lengthy events were so appropriate to the awakening stimulus, it has been proposed that the stimulus initiates the dream and all the imagery is compressed into the short interval between the initial perception of the stimulus and the awakening. Considering the very large amount of dream literature, these examples are quite rare, and pertaining to Maury's dream, Ellis has pointed out that the dream was not recorded until ten years after it had been dreamed.

Anecdotal reports have also lent support to the contrary view that the duration of a dream is identical to the duration of a similar experience in reality. Clavière has reported a dream in which the sound of an alarm was incorporated twice into a dream. In this dream a conversation occurs between the two alarms which, when Clavière repeated it in waking life, took 17-18 sec. Upon testing the alarm clock, he found that 22 sec. elasped between the time of the first and second rings. A similar anecdote was reported in our results with a like correspondence between dream and reality.

In an earlier study of eye movements and dream recall, it was found that the length of eye-movement periods correlated with the length of dream narratives. Further, the action reported in the narratives corresponding to different lengths of eye-movement periods was such that the same amount of time might have been expected to elapse if the dreams were re-enacted. Such findings support the hypothesis that dream events and real events proceed at about the same rate. The results of the attempts to time dreams in this study also support this idea. An additional corroboration is that the speed and duration of the eye movements themselves is the same during sleep as it is in wakefulness.

One implication of the apparent fact that one can predict certain elements of the dream from physiological measurements is that it is almost certain in many cases that the dreamer reported the dream as it actually occurred. It has been suggested that the dream report, even if sincere, is a disguised, secondary elaboration of the "real" dream. If this were true, it seems very unlikely that the objective eye-movement patterns would correspond so well to the dream content. Of course, this may only apply to dreams elicited in the laboratory where the verbal report is obtained immediately after an awakening that interrupts an eye-movement period. If the dream recall is obtained at a later time, either upon awakening in the morning or during the following day, it is possible that the secondary elaboration postulated by others may occur between the actual time of dreaming and the time of the delayed report.

From this and other studies it can be seen that certain aspects of dreaming which in the past could only be speculated about may now be subjected to experimental analysis. Using eye-movement potentials and brain waves as objective criteria of dreaming, it has been possible to determine the pattern of occurrence, duration, and course of time of dreams, as well as the relation of specific eye movements, body movements, and external stimuli to their content. It is further hoped that this technique may afford a means of assessing certain theories of the meaning of dreams and perhaps give some insight into their fundamental significance to the physiological and psychological economy of the organism.

SUMMARY

The occurrence of dreaming was localized in 16 *S*s by observation of rapid eye movements and characteristic brain-wave patterns. The dream content recalled after awakening at these times was subjected to analysis. It was found that the amount of observed eye movement was related to the degree of participa-

tion of *S*s in the events of the dreams. The direction of the last observed eye movement before awakening corresponded to the last reported fixation of the dreamer. Body movements seemed to be related to the termination of a dream sequence. Certain external and internal stimuli were not found to be important factors influencing the course of the dream content. By timing the interval between the introduction of a modifying stimulus and the subsequent awakening, it was found that the course of time in the dream was comparable to the time elapsing during an identical activity performed in the waking state. The implications of these findings was discussed.

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